THE OIL WEEKLY

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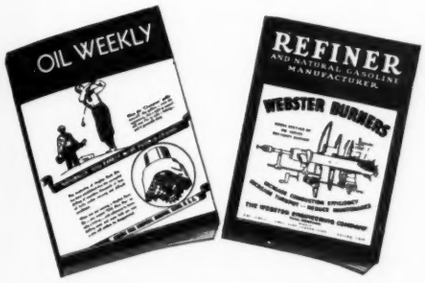

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The Oil Man's Calendar

FEB.	
15	**A.P.I., East Texas Chapter, Kilgore, Texas.**
14-18	**American Institute of Mining and Metallurgical Engineers, Annual Meeting, New York.**
17-18	**Mid-Continent District, A.P.I., Division of Production, Amarillo, Tex.**
MAR.	
15-17	**Society of Exploration Geophysicists, New Orleans.**
16-18	**American Association of Petroleum Geologists, New Orleans.**
21-25	**Western Metal Congress, Biltmore Hotel, Los Angeles.**
23-25	**American Society of Mechanical Engineers, Los Angeles, Calif.**
24-25	**Southwestern District, A.P.I., Spring Meeting, Fort Worth, Texas.**
APR.	
13-15	**Petroleum Industry Electrical Association, Rice Hotel, Houston.**
13-15	**National Petroleum Association, Cleveland, Ohio.**
19	**A.P.I., Division of Production, Pacific Coast District, Spring Meeting, Biltmore Hotel, Los Angeles.**
28-29	**A.P.I., Eastern District, Division of Production, William Penn Hotel, Pittsburgh, Pennsylvania.**
MAY	
6-12	**American Gas Association, Natural Gas Department, New Orleans, La.**
11-13	**Natural Gasoline Association of America, Hotel Tulsa, Tulsa.**
12-14	**National Oil Scouts Association of America, Tulsa, Oklahoma.**
14-21	**International Petroleum Exposition, Tulsa, Oklahoma.**
23-25	**A.P.I., Wichita, Kansas.**

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LOOKING AHEAD

WITH THE EDITOR

Deep Records Are Due to Fall . . .
Engineering Progress to Continue Achievements . . .

IT is a good guess that in 1938 new world records will be established for both drilling and producing depths. For over the years, the trends have been steadily toward greater depths, as will be explained in an interesting article that also will tabulate all the wells drilled below 10,000 feet.

Besides possible new world records in deep drilling and deep producing, the year is sure to witness a further expansion of drilling below 10,000 feet, as wells of that depth became common in 1937, and several fields yielding commercial production below that level were discovered in the year.

The greatest significance of such deep drilling activity is the possibility for materially increasing known recoverable oil reserves.

THE past year saw much advancement in exploration, drilling, production and pipe line practices and equipment, and these improvements will be carried forward aggressively during 1938. A review of the principal engineering progress of the year is to be another feature of the next issue of THE OIL WEEKLY. It has been prepared by Brad Mills, our associate editor, who wrote more technical articles last year than any other person. He expects that engineers in 1938 will attack problems with even more varied and effective research than in the past.

A METHOD for differentiating between sweet and sour natural gas has been developed by the Texas Railroad Commission, and is to be explained in an article that will appear in an early issue. It should be of interest and value to all operators confronted with this question, particularly to those operating in the State of Texas.

The changing panorama

ADOPTION of Federal regulation of all interstate corporations, rather than the strengthening of existing anti-trust laws, was seen in Washington last week as the probable approach of the administration to monopoly control.

Monopoly Program Changing

Success of the government in securing a favorable verdict in its "trust-busting" case at Madison, Wis., last week, demonstrating the enforceability of the present statutes, is said to have served to abate the demand of administration officials for more coprous laws.

It is admitted, also, that uncertainty regarding President Roosevelt's anti-monopoly program has kept business uneasy and has contributed to his failure to secure the cooperation which he has sought from industry, a contributing factor to his present determination to resume government spending on a large scale in a new effort to spur recovery and bring about prosperity before the congressional elections next November.

Nomination January 27 of Assistant Attorney General Robert H. Jackson, heretofore in charge of anti-trust enforcement, to be solicitor general of the United States, succeeding Stanley Reed, recently appointed a member of the Supreme Court to succeed retiring Associate Justice Sutherland, will take him to some extent out of the picture, where he has been the foremost advocate of vigorous anti-trust legislation.

May Adopt Control Instead

The President has not yet decided when he will send to Congress his message asking new monopoly legislation, but is understood to have been studying the matter and this week conferred with Senator O'Mahoney, co-author of a bill requiring the federal licensing of all corporations doing an interstate business.

Doubts regarding the constitutionality of the O'Mahoney plan are said to have been satisfactorily settled by administration leaders, and it is indicated legislation along that line may be asked, eliminating the embarrassment which would result from a demand for a measure specifically outlawing practices which industries were asked by the government to adopt under the NRA.

Other Regulation Trends

There were other trends toward regulation of the oil business last week too. Several states are investigating affairs, outstanding among which is that in Pennsylvania. Definite warning has been issued here that control of the industry is forthcoming unless it is able to better handle matters than in the past several months. The difficulty in Pennsylvania lies in declining prices, however. Quite the contrary to the trouble that is bringing the federal government into the picture. Consistent crude price cuts have lowered Pennsylvania's income to the point that the stripper wells comprising its industry are no longer able to operate.

Control During War Provided

Meanwhile, complete federal control of the oil industry in the event of war, without the necessity of special legislation, would be provided for in a measure to take the profit out of war, immediate action on which is to be sought in congress in line with President Roosevelt's request for such action in his January 28 message on national defense.

The legislation, favorably reported by the House Military Affairs Committee last May and now awaiting a place on the House calendar, would permit the President, in the event of war, to hold prices for oil and other commodities below "ceilings" which he would set, but without the actual fixing on prices; eliminate profiteering and prevent inflation, co-ordinate government purchases, provide for an adequate production of oil and other essential commodities, and prevent hoarding and accumulation of stocks.

The measure would authorize the President to require producers, manufacturers, importers, exporters, dealers and owners of stocks of essential commodities to secure licenses, without which they could not operate.

As a preventive of profiteering, the bill provides for an adoption of a system of war-time taxation which, without preventing a fair normal return to labor, management and invested capital, would absorb all surplus profits above such return. The actual rate of return would be fixed by Congress after the outbreak of a war, when the legislation would become effective.

Other "Madison" Suits

In Madison, Wis., a week ago, a jury, mostly made up of farmers, finished listening to four months of complicated legal arguments, and then required but nine hours to declare guilty of violating the United States anti-trust laws by operating buying pools in the Mid-Continent, all the 16 oil companies and 30 petroleum executives remaining on trial in one of the largest trust suits in history.

This action was one reason why Washington was considering federal control of interstate business.

The decision favorable to the government at Madison also is likely to have other repercussions. The Department of Justice was highly elated, and now is expected to commence similar suits in other parts of the country. Concerns indicted on another grand jury investigation at Madison may have to stand trial, suits may be commenced in New York and California also.

Proration Picture

Governors told nation faces shortage . . . Output in Oklahoma cut . . . Arkansas, Montana, Michigan and Pennsylvania wrangle with proration problems.

THE most definite proration action of the week was the adding of Oklahoma to the states that will have lower allowables in February. However, there were other matters of importance, such as to the conference of governors at Hot Springs, although nothing was accomplished apparently. Meanwhile, it developed that Pennsylvania may adopt conservation measures, Montana continued to wrangle with proration, an injunction was issued against enforcement of production curtailment in Arkansas, and possibility of an investigation of allowables granted in Texas without formal hearings.

Oklahoma cuts 15,000

The Oklahoma Corporation Commission fixed its allowable for February at 535,000 barrels daily, a reduction of 15,000 barrels under January and 34,700 barrels below the recommended quota of the U. S. Bureau of Mines.

The reduction was accomplished by bringing Class B pools down 7271 barrels, Class C pools down 5529 barrels daily and the unclassified but prorated areas down 2200 barrels daily.

Oklahoma City Wilcox zone was left unchanged at 97,095 barrels.

Major reductions in the Class B division was 696 barrels for Crescent, 1522 barrels for Edmund and 2304 barrels for Moore.

Most of the 5529 barrels of reduction for Class C pools was taken from Fitts, where the Hunton lime wells were reduced 2000 barrels and the Upper Simpson 3195 barrels, to give Fitts a total reduction of 5195 barrels.

The reduction of 2200 barrels daily in the unclassified but prorated pools was accomplished by a reduction of 1000 barrels for South Burbank, 1100 barrels for the Naval Reserve pool and 100 barrels daily for the Gray field.

Roeser comments on allowable reductions

Chas. F. Roeser, of Fort Worth, Texas, president of the Independent Petroleum Association of America, in commenting on the movement to reduce crude oil production allowables, said:

"The independent producers throughout the United States will approve the movement of the various state regulatory bodies to reduce the allowable production of crude petroleum for the purpose of avoiding useless waste. Attention is called, however, to the fact that as a result of refinery operations the equivalent of approximately 30 million barrels of excess crude is now in storage in the form of refined products. Most of this storage seems to be in the area of the larger refineries. Whether it is the large or small refiners at fault this situation should be corrected. Unless the leading refiners take steps to reduce this storage so that an economic balance may be reached not later than April 1 this year great injury will result to hundreds of small refiners. The independent producers cannot afford to have the independent refiners destroyed.

"Imported oil has contributed much to our present situation. In a time when thousands of domestic producers are forced to sacrifice needed income it is not fair to continue bringing foreign oil into an already disturbed market, contributing to our own distress. The importers should not want to continue to force this intolerable condition upon the domestic industry."

Governors told shortage of U. S. oil imminent

If domestic demand for crude oil continues to climb over the next 20 years as it has in the past 20, the score of years between now and 1958 will each call for 1,700,000,000 barrels of oil. That will call for the discovery of 28,000,000,000 barrels of oil and leave the United States with just 6,000,000,000 barrels in reserves.

Such was the range and the prospect at which governors of three oil producing states, representatives of governors of four other oil producing states, a representative of the Department of the Interior and a score of observers gazed by means of charts on the wall of a conference room of the Eastman hotel in Hot Springs, Arkansas, January 24 and 25.

The conference adjourned under the urge of Governor E. W. Marland of Oklahoma to reconvene next fall, when the governors of the oil producing states will be asked to come prepared to make recommendations for legislation to help solve the matter of assuring the discoveries equal to this estimate of consumption.

The mass of datum was prepared by Alex W. McCoy, consulting geologist of Ponca City. His charts and figures were submitted only as estimates but two days of consideration failed to bring out material differences of opinion as to their accuracy.

For instance the assumption that consumption of oil will continue to climb for 20 years as it has for the past 20 years brought expressions of doubt. No one, however, would hazard an estimate to change the line by enough to show material difference by 1958.

The estimate set present reserves at 12,900,000,000 barrels, of which 9,600,000,000 barrels are drilled and 3,300,000,000 barrels are known but not drilled. Of the 3,300,000,000 of known but not fully drilled total, McCoy estimated that perhaps 1,500,000,000 could not be profitably produced at present prices.

Cost to Be High

He set the cost of finding the last 18,000,000,000 barrels of oil at $1.111 per barrel and estimated $1.89 per barrel as the cost of 28,000,000,000 barrels.

His calculations for fulfilling requirements for the next 20 years were that 90 percent or 11,700,000,000 barrels of present reserves would be produced; from the 28,000,000,000 barrels of needed reserves would come the 22,300,000 000 barrels to provide the requirement of 34,000,000,000 barrels over the period.

The drilling program estimated as essential to fulfilling such a program was 400,000 producing wells, which will cost $18,000,000,000; 500,000 dry holes which will cost $15,000,000,000, to which must be added bonus, rental and legal costs of $5,000,000,000 as well as scientific costs of $1,000,000,000, a grand total of $39,000,000,000 or $1.39 per barrel for discovery and drilling.

Such was the picture against which Governor E. W. Marland opened the conference of governors, a meeting that resulted from a statement of a month previous when he said that price was a factor in conservation and that he thought governors should meet and discuss it, since the oil industry is not privileged to consider prices in dealing with proration.

Price proved a minor factor in the deliberations, which for the most part were a series of informal discussions, with the single objective of maintaining the position of the states as rightful political bodies in assisting the industry to solve its problems of finding reserves as well as maintaining restrictions on the current situation of too much oil for the present.

Governor Marland pointed to two conditions that harked back to price, the fact that wildcatting is no longer an individual venture, since proration and price to not permit recovering investment within reasonable time, while a substantial part of reserves are credited to stripper wells, which are being produced at a loss.

Governor Carl E. Bailey of Arkansas opened the conference with a state-

U. S. Reserves by States

Prepared by Alex McCoy

California	2,700,000,000
Rocky Mountains	276,000,000
Wyoming	215,000,000
Montana	47,000,000
Colorado	14,000,000
Central and Southern	9,363,000,000
New Mexico	430,000,000
Texas	5,870,000,000
Oklahoma	1,480,000,000
Kansas	747,000,000
Louisiana	698,000,000
Arkansas	138,000,000
Eastern States	570,000,000
Illinois	50,000,000
Indiana	11,000,000
Kentucky	30,000,000
Michigan	78,000,000
New York	40,000,000
Ohio	36,000,000
Pennsylvania	300,000,000
West Virginia	25,000,000
Total United States	12,909,000,000

ment that he knew little about the industry but considered it the duty of elected officials to acquaint themselves with facts and act in whatever manner seemed best suited to assuring supply.

Governor Clyde Tingley of New Mexico said he thought it incumbent on governors, especially those of states whose public land revenue goes to schools, to make certain of high recovery of oil sands through adequate conservation laws.

The figures and estimates of Alex W. McCoy were presented by I. G. Harmon, member of the Oklahoma Tax Commission. Charles C. Brown, chairman of the Oklahoma Tax Commission and technical adviser to the Interstate Oil Compact Commission, gave a detailed explanation of the charts on estimates of consumption and need for future reserves.

Thereafter Governor Marland was chairman of the conference and the discussion was informal.

Although no votes were taken, an estimate of opinion would justify the conclusion that a majority did not consider it feasible to project a consumption curve 20 years ahead. On that account much of the discussion was confined to the next five years. The estimate for this period left this obligation on the industry:

Shortage Very Soon

"The discovery necessary from 1938 through 1942 inclusive must approximate 6,000,000,000 barrels in order for the present known reserve and this discovery to produce sufficient crude oil to meet the expected demand after 1943."

No one offered objection to this conclusion. Against this was the set of figures to show that discovery rates have decreased 50 percent in the past seven years as compared with the discovery rate between 1924 and 1930.

So even the immediate prospect presented a problem of discovery of reserves.

As to what state governments can do about it, no one had an answer. But there were expressions to the effect that another conference would find representatives back with information on what is being done toward conservation as well as suggestions for further laws to assist in stimulating the building of reserves to meet indicated demand.

May investigate increases in Texas allowables

Increases in allowables ordered by the Texas Railroad Commission without formal hearing may be investigated by the Senate committee now hearing the case against State Land Commissioner W. H. McDonald. Senator Joe Hill said he had asked for a report of the increases, but was unable to obtain it. He charged some of the increases were retroactive, implying they extended further back than the first of the month in which the order was issued. He said this constituted back allowable, which the commission had told East Texas operators could not be granted.

Pennsylvania producers propose proration

With only two of 24 dissenting, directors of the Central Pennsylvania Oil Producers Association voted to draw up an oil conservation act for the state for submission to the legislature during a special session that may be called this spring or for action at the regular session early next year. A committee comprised of W. J. Brundred, Oil City, vice president of the association, and E. C. Breene, Oil City, who were authorized to name a third member, was appointed to draft the bill.

David B. McCalmont, Franklin, president of the group, led the discussion on the proposal, declaring that increasing stocks of Pennsylvania grade crude alone could not be responsible for the drop in prices. Since October 1, last year, he declared stocks increased only 21,000 barrels, or one half of one percent, yet the price dropped 45 cents a barrel, and suggested that lubricating oil inventories were responsible, not crude stocks.

State Proposes Control

Action of the Pennsylvania producers' organization followed by one week announcement that the state adminstration would bring oil production under government regulation and control if production was not curtailed and the industry stabilized within the state. The announcement was made by Walter A. Jones, who attended the Interstate Oil Compact Commission meeting in Oklahoma City as an official observer for Pennsylvania.

Jones told the commission that he had been authorized by Governor George H. Earle to quote his as saying that he would take steps to institute government control if production was not curbed and the industry stabilized. Despite the action of the Central Pennsylvania organization, state control of production is certain to meet the vigorous objection of many Pennsylvania grade crude operators if a plan is not adopted that would bring a similar curb of production in adjoining New York, West Virginia and Ohio. Approximately 35 percent of Pennsylvania grade crude is produced in these states.

Whether state regulation would be sought by the governor independent of recommendations of the administration-sponsored investigating commission, or whether he would base his demand for state control on findings of the commission, has not been indicated. The commission, as yet far from through with its probe, conducted several hearings on producing and refining branches of the industry, but recently has been directing its attention to marketing. That the producing and refining branches will be given closer scrutiny, however, is indicated by questionnaires recently mailed by the commission and by subpoenas issued demanding the appearance of many refiners at a hearing February 1 in Philadelphia.

Injunction against Arkansas proration to be heard shortly

Chancellor A. P. Steel in Texarkana last week set February 14 as the date for hearing on a petition for a permanent injunction restraining the Arkansas Board of Conservation from interfering with operation of the properties of William Monroe Layton in the Miller County, Arkansas, extension of the Rodessa field.

Layton was granted a temporary injunction on a petition filed by him and by Jeff King, operator, and John A. Terry on whose lease Layton has completed three producers in Miller County.

Petitioners claimed that they were being prevented from drilling a fourth test on a 42.86-acre tract in fractional W½ W½ 14-20-28, and that Layton under the proration order of the Arkansas Board of Conservation was being prevented from disposing of oil now being produced, the petition alleged, without stating whether the oil was produced in accordance with the regulations of the order or not.

Last week Layton was reported, under provisions of his temporary injunction, to have ten tank cars loaded with crude for shipment, probably to New Orleans or some Gulf port.

Michigan operators reject Buckeye cut

An attempt to prorate the 350-well Buckeye, Gladwin County, Michigan, field to 20 barrels per well, collapsed without ever being placed into effect. The proposal, adopted by operators as the desperate answer to a weak price and market structure in Michigan, was abandoned when several large independent and major companies refused to join.

No alternative plan had been proposed this week.

Buckeye, with an estimated 96,000-barrel potential, is and has been under a voluntary proration schedule of 75 barrels per well since June, 1937. This has been about 75 percent effective. Current production from this field is about 25,000 barrels daily. Average per-well production over the past 3 months was reported at 86 barrels.

Montana wrangles with proration problem

Operators appearing before the Montana Oil Conservation Board hearing on proposed state proration continued to wrangle with the problem as the hearing was extended from the past Saturday when it was expected to close.

Following presentation of anti-prorationists, H. C. Bretschnieder, Colorado's representative to the Interstate Oil Compact, called as an expert witness, charged that statements of Fred C. Platt, engineer, that costs of conducting surveys in the Cut Bank and Kevin-Sunburst field for 30 days to determine proration procedure, were too high.

Platt earlier in the hearings said the cost would run to about $360,000. Bretschnieder did not say what the costs would be. He told operators that proration was an accepted problem which oil men would not give up in states where proration has been tried. He defined proration "as a levelling process to stabilize the price of oil."

R. Staley, proration umpire for New Mexico, said proration in his state had not deferred the erection of refineries and three refineries had been built since New Mexico proration had been adopted.

Oil in Courts

Madison trust violation convictions are protested, three motions filed behalf individuals . . . Other similar suits being planned by federal government

COUNSEL for 16 major oil companies and 30 individuals, for the most part officials of the companies, found guilty January 22 by a federal court jury of small business men and farmers at Madison, Wisconsin, of conspiracy to violate the Sherman anti-trust law last week prepared a legal battle on four fronts to vindicate the industry.

Three motions were filed on behalf of each of the defendant companies and individuals, seeking an arrest of judgment, a new trial, or a court order setting aside the jury verdicts. Arguments on the motions, Federal Judge Patrick T. Stone who heard the case indicated, will probably not be heard for a month, and meanwhile bond of $5,000 for each of the defendants has been continued and sentencing deferred.

The petition for an arrest of judgment charges that defendants were deprived of their rights as guaranteed by the sixth amendment to the constitution in being denied the right of trial in the district in which the alleged crime was committed, defendants declaring that the indictment and the record of the trial fail to prove a violation of the Sherman act in the state of Wisconsin. Granting of the motion would have the effect of throwing out both the trial and the verdict. Thirteen types of errors which the defendants maintain were committed by the court and the prosecution during the trial, that deprived them of a fair and impartial trial by prejudicing the jury, were listed in the motion for a new trial.

Should all three defense motions filed last week be denied by the court, an appeal to the U. S. circuit court of appeals at Chicago is certain. Such an appeal, it was indicated, would be based in part on the court's instructions to the jury in which he declared that "even if you find that some government officers knew of or acquiesced in such a combination or conspiracy, such knowledge or acquiescence would not excuse the violation of the Sherman act, if you find that the law was violated."

Second Trial Probable

Government attorneys, elated over their victory in the present case, indicated that a second indictment charging many of the same oil companies and individuals would be called for trial in Madison. Judge Stone indicated, however, that the second indictment would not be tried, at least, until next fall. It charges conspiracy to restrict jobber margins through use of uniform contracts, and it understood that the government believes its case is stronger on this charge than on the indictment just tried.

A conviction for violation of the Sherman anti-trust law, basis of charges in both indictments, carries a penalty up to a $5000 fine for corporate defendants, and a $5000 fine or one year in jail, or both, for individual defendants.

The jury in its verdict held, in effect, that the defendant companies and individuals, together with a group of East Texas and Mid-Continent independent refiners who were termed "co-conspirators" by the prosecution, had the power to control gasoline prices in 10 midwestern states and exercised it by removing surplus gasoline from spot markets at "high, artificial, and non-competitive prices."

Washington Pleased

Successful so far in the most important oil prosecution since the Standard Oil dissolution case many years ago, Department of Justice officials at Washington are considering the desirability of bringing a similar case in New York, as well as reopening the California consent case.

At the department, however, it was said no decision has yet been reached as to whether to file these suits immediately.

The Madison case was one of the very few anti-trust suits tried before a jury in recent years in which defendants have either not been acquitted nor have accepted a consent decree.

Consent decree procedure, however, is threatened by a recent ruling of Judge Ferdinand A. Geiger of the Federal District Court at Milwaukee banning acceptance by the Government of such decrees in anti-trust suits.

Result of Judge Geiger's ruling, if made a precedent, would be to expose concerns falling afoul of the law to terrific damage claims.

The anti-trust statutes provide that where a person, concern or organization is found guilty of violation of the law, anyone who may have been damaged by the monopolistic activities involved may bring suit for three-fold damages. Where a case is closed by a consent decree, however, such danger is averted.

To secure a consent decree, the respondents in a suit must admit by stipulation that they have used the practices complained of and promise to discontinue such activities. If they violate that promise at some future date, the Government may reopen the case and again go into court, using the stipulation as prima facie evidence that violation of the law had at one time occurred.

It is on such a stipulation that the department for some time has been studying conditions in California, and any proceedings brought there would be in the form of a reopening of the case which was settled by consent decree.

List of Defendants

Corporate defendants against whom the jury returned verdicts of guilty are: Standard Oil Company of Indiana; Socony-Vacuum Oil Company, Inc., Cities Service Company, Continental Oil Company, Pure Oil Company, Shell Petroleum Corporation, Sinclair Refining Company, Mid-Continent Petroleum Corporation, Phillips Petroleum Company, Skelly Oil Company, Barnsdall Refining Corporation, Globe Oil & Refining Company of Oklahoma, Globe Oil & Refining Company of Kansas, Globe Oil & Refining Company of Illi-

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Legislation Trends

Pennsylvania investigating committee set back by injunction . . . Texas starts oil leasing quiz

SEVERAL state investigations of various phases of the petroleum industry were interesting activities in the legislation field last week. While an injunction was being obtained against requests made by an investigating commission in Pennsylvania, Texas state land bids were being studied, and several oil bills were being drafted in Mississippi.

Injunction obtained against Pennsylvania's investigation

Pennsylvania's oil industry investigation commission received its first major setback last week when the Petrol Corporation, Philadelphia, obtained a court order preventing the commission from obtaining the company's contracts and other confidential papers.

The commission was created by the 1937 legislature to investigate all branches of the oil industry and to make recommendations as to whether the industry, or any part of it, should be subjected to regulation as a public utility. An appropriation of $50,000, which was raised by a $1 tax on every filling station pump throughout the state, was made for the purpose and the commission was given the power of subpoena.

Named as defendants of the action were Judge Ralph H. Smith, Pittsburgh, chairman, and commission members, including William H. Godfrey, who was described as an officer and director of the Major Petroleum Company and the Water Ter-

minal Company, selling petroleum products in Philadelphia.

In its objections to the commission's methods, the Petrol company asserted that "compulsory and enforced public disclosures of the terms and provisions" of its contracts with customers, "private and personal as they are, can serve no reasonable or proper public purpose, in which the people of the commonwealth can have a lawful and legitimate interest, and will inevitably and necessarily cause irreparable loss, injury and damage to the property and business of the Petrol Corporation and its customers by exposing and exhibiting to public scrutiny and knowledge the business and trade secrets of the Petrol Corporation as well as the private and confidential business relations between the Petrol Corporation and its customers. . . ."

Further objections were that this would render the company and its customers vulnerable to unfair trade practices of their business competitors; that such forcible disclosure "will not rebound to the advantage of any person whatsoever other than the said business competitors or complainants, one of whom is one of the defendants herein, the said Godfrey. . . ."

The Petrol company said that it had been ordered by the commission to produce at the Philadelphia hearing "certain and sundry of the private, confidential and valuable contracts, papers and documents of the Petrol Corporation as follows: Cities Service Oil Company, Elliott-Lewis Company, Craig Coal Company, and General Utilities Company and all their affiliates," as well as a list of the shareholders of the Petrol corporation and profit and loss statements for the years 1936 and 1937.

Texas investigation of state oil leases start

An investigation into oil leases approved by State Land Commissioner William H. McDonald was begun last week by a Texas Senate investigating committee. The state planned to call 22 witnesses, most of whom have obtained leases on Texas oil lands since McDonald was elected into office last January.

Governor James V. Allred, who has recently attacked Land Commissioner McDonald's policies, retained a special attorney to interrogate witnesses at the hearing, and is expected to take an active part in the case.

Senator T. J. Holbrook of Galveston told McDonald that he had cost the state $1,000,000 already. He warned him that a fixed policy for leasing oil lands must be established, and followed. He protested against McDonald's program of leasing to bidders who offered a small cash payment and a large royalty.

He charged in one instance, Humble bid more than $103,000 cash plus ⅛ royalty for a lease in the Flour Bluff field. This bid, Holbrook said, was turned down and the land leased to a bidder who offered only $400 cash and a larger royalty.

Draft Mississippi laws

Several bills pertaining to operation of the State Oil and Gas Board, the Mississippi State Geological Survey, and the state mineral lease commission have been introduced in the Mississippi legislature now in session.

One of the bills provides for an appropriation of $12,700 for the State Oil and Gas Board for the biennium July 1, 1938 to June 30, 1940. Another provides $5,000 for the mineral lease commission to be spent if needed in making necessary repairs or purchasing equipment for producing gas wells on the old Insane Hospital lands comprising 1320 acres in the Jackson gas field, during the ensuing two years.

Another bill would appropriate $22,500 for the biennial expenses of the state geological survey, and another would authorize the survey's co-operation with the United States Geological Survey in studying ground water of Mississippi and would appropriate a sum of $10,000 for this purpose, and another bill authorizes similar co-operation in studying surface waters of Mississippi, and appropriates $20,000 for this project for the coming two years.

Another bill would appropriate $100,000 for advertising the state's possibilities and resources. All of these bills are now in committee.

It is also reported as likely that a bill will be introduced in the present session calling for reservation by the state of one eighth of mineral rights in all sales of public lands.

Labor Situation

Roosevelt urges wages be maintained . . . Concerns post bonds in Mexican fight . . . Constitutionality hearing on Pennsylvania's new law to be resumed

RESPONSIBILITY for the maintenance of current wage levels in the United States until the present recession is over was laid squarely upon the mass production industries January 25 by President Roosevelt who, at the same time called upon the producers to lower the prices of their goods to a point within reach of the consumers.

In a formal statement reminiscent of the calls for industrial solidarity issued by former President Hoover at the outset of the depression, Roosevelt declared: "If industries reduce wages this winter and spring, they will be deliberately encouraging the withholding of buying—they will be fostering a downward spiral and they will make it necessary for their Government to consider other means of creating purchasing power."

Those who believe in the profit system, he said, "must recognize that those who get the profits when business is good must bear the losses when business temporarily is slack. Those who get the profits when industry gets the volume are the ones to bear the risk of such price reductions as may be necessary to stimulate and restore volume.

"Those in charge of a well-managed and solvent industry should no more consider casting the burden of a temporary business recession upon their workers than upon their bondholders. To cast such burden on the bondholders is financial bankruptcy. To cast such burden on its workers is not only moral bankruptcy, but the bankruptcy of sound busines judgment.

"Industrialists kill the goose which lays the golden egg when they keep prices up at the expense of employment and purchasing power. Industrialists kill the goose which lays the golden egg when they cut wages and thereby reduce purchasing power. Either policy is self-defeating and suicidal."

Mexican Concerns Post Bonds

Oil companies involved in the general Mexican labor conflict have posted a cash bond of $835,000 with a bank in Mexico City in order to relieve them of having to settle forthwith with wage claims for the general strike that occurred several months until the Federal Supreme Court acts on the government's verdict that the companies must increase wages. The posting also is seen as averting attempts by laborites to embargo the firms' capital and property before the high court renders its ruling, and the bond also assures labor that it won't suffer loss of claimed rights resulting from delay in executing wage and other awards made by the government. This is said to be the largest cash bond ever posted by oil companies in Mexico in connection with a labor dispute. The Mexican Eagle Oil Company posted a much larger one some time ago, but that was in a matter of litigation.

A pact has been made by Mexican Eagle Oil Company with its workers, which is designed to smooth the path to a general working agreement with its labor. The pact clears obstacles that beset progress of conversations designed to bring about general agreements.

Pennsylvania Hearing

A court hearing involving the constitutionality of Pennsylvania's 44-hour week law will be resumed today (January 31) in Dauphin County court at Harrisburg. The hearing opened January 17, continuing only for a few days, when attorneys bringing the action and who represent over 700 employers were unable to agree with Attorney General Charles J. Margiotti on a set of facts that could be the basis of an immediate ruling by the state supreme court.

The lower court hearing centers around the state's objections to granting an injunction to a Kane manufacturing firm that would prevent enforcement of the law. It is expected to take about a month to clear the lower court, making it impossible to bring the case before the supreme court before its March session. In that event, a decision could not be expected before June.

EDITORIAL

1938 Prosperity and Congress

By RAY L. DUDLEY

In this issue of THE OIL WEEKLY will be found many forecasts as to what will happen in 1938. The editors do not claim to be crystal gazers or prophets, but there is a definite relationship between what has happened and what will likely happen in the oil industry which makes it a reasonable task to make forecasts. In fact, forecasting is the science upon which our present month-by-month allowables are based.

However, in making forecasts for 1938 we have been confronted by one factor which during the past few years has assumed growing importance—the interference by constituted authorities with what in the past we had come to consider the normal trend of things.

At a time when, by every rule of economic reason we had every right to expect that the long-sought and at-last-found prosperity would continue with us, the horizon was clouded with some legislation which from the first was seen to be ill advised, and by threats which indicated that our administration in Washington was of the belief that anyone who had achieved a reasonable degree of success might not be the most desirable type of citizen.

Threats of additional labor trouble on a wide scale, threats of hasty readjustments in wage scales and hours, threats at financial structures which have become a part of the national economy, have unquestionably frightened those responsible for the operation of business, be it big or small.

The idea that only "big business" is affected by the attitude of Washington is utterly absurd. Anybody in business is affected by it and that includes not only those who own businesses, large or small, but the employes of such businesses, and the stockholders of such organizations.

And, come to think of it sanely, why should big business be shot at just because it is big? To assume that all business, big or small, is bad because there have been some bad boys in it, is as foolish as to assume that because one member, or several, of one religious denomination goes wrong, all the other believers are to get the axe.

The trouble with our administration—or one of them—is that our National Physician has insisted on treating all disorders as though they were epidemics.

During the past few weeks we have had occasion to contact by person and by correspondence a great many executives of both large, intermediate and small concerns in the oil industry. At every turn, in seeking a sound basis for our forecasts on 1938 we have been met with the statement that "such and such will be done unless this recession grows into a depression." There is no threat here—no "sit-down strike" of capital, but on the contrary the well-grounded fear that things may get out of hand completely unless our representatives in Washington recognize the gravity of the situation. And as we have said so many times before, the answer to the problem is not a complicated one. The answer is pretty well known by every one. Of course there is more than one reason. The tax on undistributed profits is one. It puts a premium on what in past days would have been called improvident management and stifles expansion and necessary replacement. The attitude of the administration has been that every check shall be maintained on responsible business while the irresponsible labor leader is not only unchecked but encouraged. And finally there are the frequent declarations from the White House which set the most sensitive things in the world—capital and credit—trembling in their boots. A shorter and more ugly term would be "business baiting."

That Congress appreciates the fact that there must be an employer if there is employment to be had (with the alternative of the socialistic or communistic state) seems apparent. That members of Congress prefer to have their leader in the White House speak first is also apparent.

The leader himself seems to appreciate that possibly something must be done. All the conferences we have been reading of surely must have convinced him of the possibility that it is he, and not the rest of the army, who is out of step.

Our opinion as to what will happen is no better than that of the next man. But we cannot believe that our representatives in the Congress will be so criminally insane or partisan as to fail to take corrective steps.

If those corrective steps are taken, the oil industry has ahead of it a year of splendid prosperity. The present estimates of consumption will be found to be conservative. The employment within the industry will be at an all-time peak. The ability to maintain wages will be unquestioned. And profits, which are necessary to national prosperity—and necessary to our national treasury—will be satisfactory. Who would be fool enough to choose the other side?

The forecasts made by THE OIL WEEKLY staff and published in this issue are founded, we know, on sound basis. If the present recession is halted they will stand. If it is not halted—well, we have all seen a depression before!

1938 Outlook

Year may compare favorably with 1937, despite unsettled markets, as further gains in business volumes are likely

By L. J. LOGAN
Associate Editor

AFTER having experienced in 1937 one of the best years in all its history, with volumes of business at all-time record proportions, prices good, and earnings large, the petroleum industry currently entertains some misgivings over its ability to equal the remarkable 1937 record in 1938.

However, most circumstances indicate that such misgivings should not be permitted to grow into pesimism.

For any serious impairment of the oil situation that prevailed in 1937 appears to be only a remote possibility.

And merely a little loss of ground would not be a disaster, when that held exceeds the dreams of a few years ago.

Industry On High Plane

In the six years since it sank temporarily into the 1931 quagmire of East Texas and depression losses, the oil industry has gone a long way upward, into altitudes comparable with those reached in the prosperous years of the late 1920's.

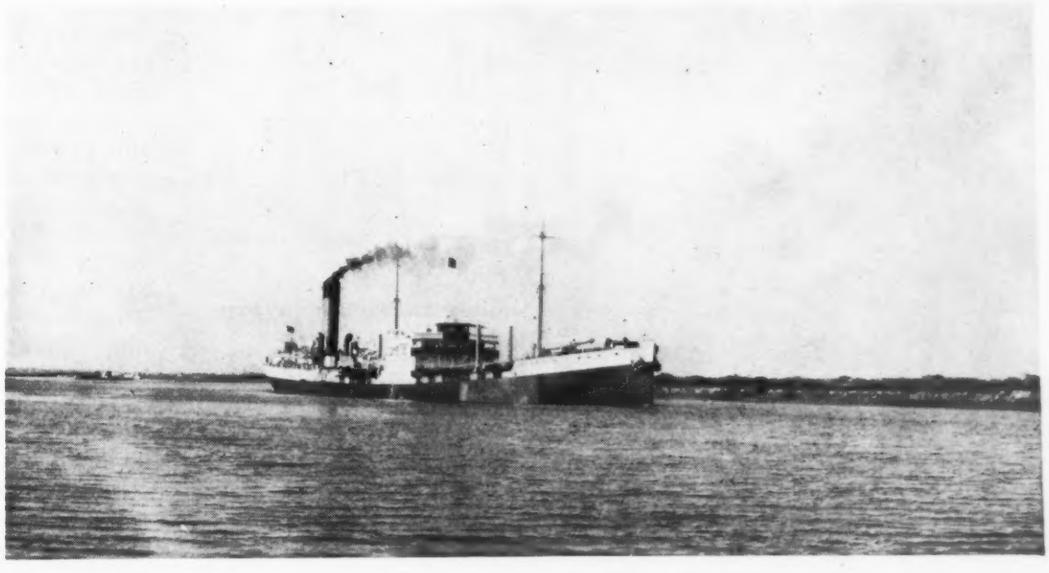
Doing all-time record volumes of business at the best prices since the depression, the industry achieved in 1937 earnings nearly as large as in 1929, the most profitable year on record.

If earnings should fail to be as good in 1938 as in 1937 it would not mean necessarily that a deplorable situation had arisen.

The industry was gratified with its earnings in 1936, and profits could decline considerably this year and yet remain larger than in 1936.

Hopefulness Justified

Furthermore, despite the present clouded outlook, there are some circumstances indicating that the



To supply the steadily growing consumption of petroleum products throughout the world, oil company tankers must be kept busy.

industry actually may not suffer any material reverses in 1938; that on the whole it may do even better in 1938 than in 1937, although not necessarily equaling in every detail the record of the past year.

It may come to pass, for instance, that oil prices may not be quite as good in 1938 as in 1937, that oil consumption and volumes of business may be somewhat larger, and that the increased business may compensate for price declines, making it possible for the oil companies to earn as much in 1938 as in 1937.

Price Prospects Hopeful

In the first few weeks of 1938 the primary concern has been over the ability to maintain established crude oil prices and to bring about some improvement of recently impaired gasoline prices.

It remains conjectural what the outcome will be—whether the gasoline market ultimately will pull the crude market down to its level, or whether prevailing strict control of crude oil production will make the crude market strong enough to pull the gasoline prices back upward.

It appears quite possible, however, that the crude market may win, if the present strict production control is extended on into spring, when the usual seasonal upturn in gasoline consumption will afford relief. And the strict crude control very likely will be so continued.

From the standpoint of prices, therefore, the situation is at least hopeful, embodying possibilities that crude postings may hold, and that product prices may be for the year as good or nearly as good as in 1937.

▲

Indicated for THE WORLD in 1938:

—New peak of oil consumption.

—Record-breaking crude oil production.

—Active exploration and drilling.

Stocks Situation Mixed

While the existing prices in the industry are affected by current production, they are affected also by oil in storage; since oil from storage tanks as well as that from underground enters into the balancing of supply with market demand and the maintenance of stable markets. And the effect of the present storage is not so wholly salutary as the effect of the current production.

For an otherwise favorable storage situation in the United States is marred by excessive gasoline stocks. The gasoline inventories are over 20 percent larger than a year ago, whereas demand has been running only around 10 percent higher. Surplus stocks undoubtedly have been largely responsible for the material decline in gasoline prices, wholesale and retail, since early last fall.

The building up of the large inventories has been due, in considerable part, to the difficulty of fulfilling the rapidly growing demand for fuel oil without at the same time turning out at the refineries too much gasoline.

Consequently, the advent of spring may be expected to have a doubly beneficial effect on the gasoline market, by bringing not only the usual seasonal expansion of gasoline consumption but also an end of the forced gasoline manufacturing incidental to satisfying the heavy winter demand for fuel oil.

▼

Indicated for UNITED STATES in 1938:

—Five percent gain in oil demand.

—Similar increase in production.

—Seven percent more drilling.

—Relatively good earnings.

In contrast with the unfavorable gasoline inventory picture, the crude oil storage situation in the United States is comparatively favorable. At the beginning of 1938, stocks of crude oil in the United States totaled 303,468,000 barrels. That was only about 5 percent more than at the beginning of 1937, and such an increase was fully justified by the fact that petroleum demand had shown, meanwhile, a similar expansion.

Like the crude oil storage, the stocks of most of the petroleum products, other than gasoline, are

satisfactory. Fuel oil inventories, for instance, appear to be about in line with market needs. Those stocks are about 13 percent larger than a year ago, but fuel oil consumption is running similarly higher.

Stocks of All Oils

In the aggregate the stocks of all oils in the United States, crude and refined, are about 8 percent larger than a year ago, having stood December 1, 1937, at 561,667,000 barrels, compared with 522,273,000 barrels one year previously. But in terms of days' supply at prevailing rates of consumption, the stocks of all oils are a little lower now than a year ago. The stocks of December 1, 1937, represented 148 days' supply, whereas those held a year before were the equivalent of 149 days' supply at the consumption rates then prevailing.

Greater Demand Expected

While the oil markets have become unsettled, expected further increases in demand throughout the world promise to provide a doubly stabilizing effect, by bolstering prices and by affording larger volumes of business.

Petroleum demand in the United States in 1938 is being estimated generally at 3 to 6 percent more than in 1937, when the requirements reached a new all-time peak. An average of numerous estimates indicates that an increase of around 5 percent for 1938 may be conservatively expected.

In 1937 the total demand for United States oils was about 10 percent larger than in 1936, although a somewhat smaller gain was shown in the closing portion of the year. Similarly, in early 1938 the demand has been running somewhat less than 10 percent above the level of early 1937.

World Increase Likely

Outside the United States, demand for petroleum has been steadily increasing in recent years, and it probably will continue to grow in 1938.

Consequently, world consumption may be expected to show another increase in 1938, comparable with any occurring in the United States, after having reached a new all-time peak in 1937. The world demand in 1937 probably amounted to almost exactly 2,000,000,000 barrels. For world demand has been running about the same as world production in recent years, and the production in 1937 was approximately 2,021,171,000 barrels.

Past Year Brought Record Demand for Petroleum Products in the United States

In exceeding the levels of 1936, consumption of various petroleum products set new all-time records in 1937. However, in the closing months of 1937, there was some flattening out of the rising trend of demand. The figures given here are from the Bureau of Mines.

(Figures indicate barrels, of 42 U. S. gallons)

ITEM	First 11 Months			November		
	1936	1937	Percent Change	1936	1937	Percent Change
Total Demand	1,112,756,000	1,227,478,000	+10.3	104,941,000	114,153,000	+ 8.8
Daily average	3,322,000	3,675,000	+10.6	3,498,000	3,805,000	+ 8.8
Exports:						
Crude petroleum	46,518,000	62,170,000	+33.6	4,145,000	6,645,000	+60.3
Refined products	73,326,000	98,094,000	+33.7	7,941,000	9,814,000	+23.6
Domestic Demand:						
Motor fuel	442,198,000	479,303,000	+ 8.4	39,919,000	42,666,000	+ 6.6
Kerosene	45,331,000	48,531,000	+ 7.1	4,943,000	5,705,000	+15.4
Gas oil and distillate fuels	89,302,000	101,549,000	+13.7	11,131,000	11,639,000	+ 4.6
Residual fuel oils	277,197,000	296,801,000	+ 7.1	24,892,000	26,057,000	+ 4.7
Lubricants	20,855,000	21,885,000	+ 4.9	1,938,000	2,037,000	+ 5.1
Wax	974,000	967,000	— 0.7	79,000	78,000	— 1.3
Coke	5,711,000	5,259,000	— 7.9	512,000	347,000	—47.5
Asphalt	21,104,000	22,120,000	+ 4.8	1,689,000	1,507,000	—10.8
Road oil	7,449,000	7,846,000	+ 5.4	308,000	276,000	—10.4
Still gas	49,844,000	56,424,000	+13.2	4,437,000	4,876,000	+ 9.9
Miscellaneous	2,058,000	2,091,000	+ 1.6	161,000	142,000	—11.8
Losses	30,898,000	24,438,000	—20.9	2,846,000	2,364,000	—16.9
Total domestic demand	992,912,000	1,067,214,000	+ 7.7	92,855,000	97,894,000	+ 5.2
Daily average	2,964,000	3,195,000	+ 7.7	3,095,000	3,256,000	+ 5.2

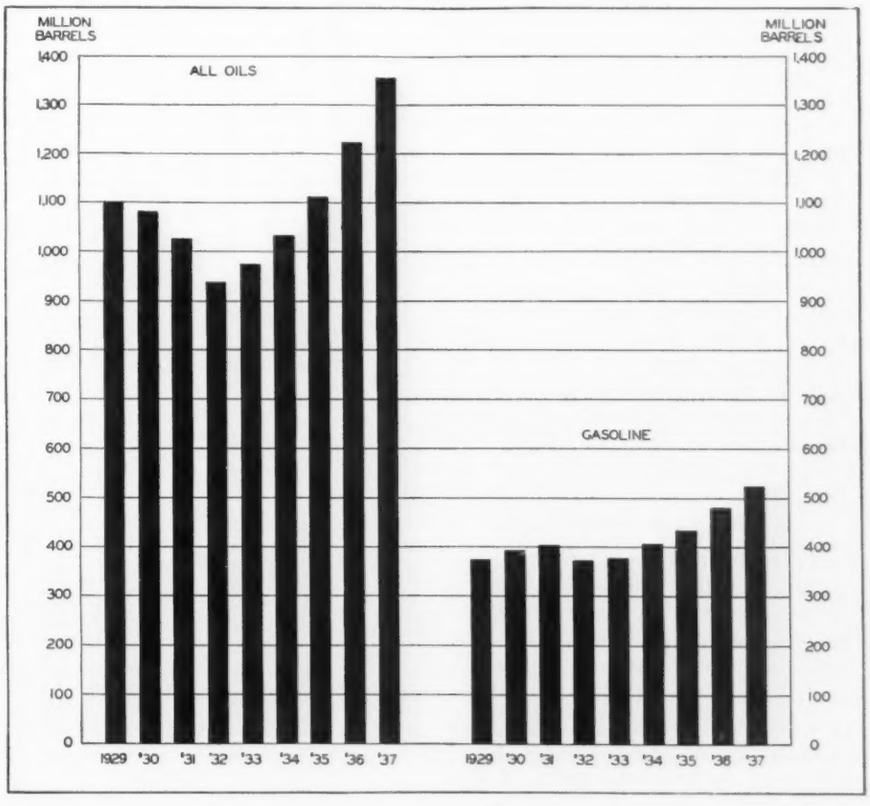
Earnings Outlook Promising

In view of the prospect of large petroleum demand and relatively stable markets and favorable prices, the outlook for oil company earnings in 1938 is hopeful.

For the fulfillment of the expectations regarding demand and markets would provide the oil companies two primary requisites for

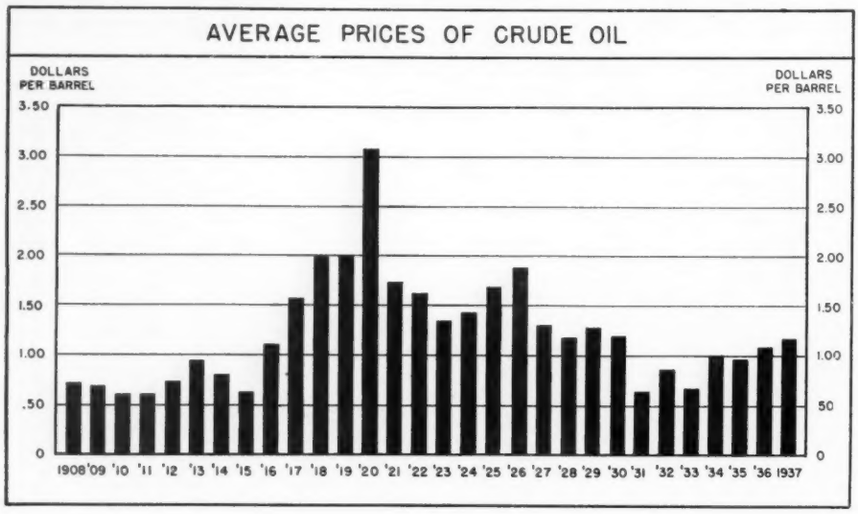
Demand Has Reached New All-Time Peak Every Year Lately

This chart shows total demand for all United States oils and domestic demand for gasoline, by years 1929-1937. It is based on Bureau of Mines figures, although estimates for December are embodied in data for 1937.



Crude Oil Prices in the United States Have Been Holding in early 1938 Around the Favorable Levels of 1937

Chart is based on Bureau of Mines data for 1908-1936 and on estimate for 1937.



profitable operations, (1) large volumes of business, and (2) satisfactory prices.

Those elements of profitable business prevailed in 1937, and made it possible for the oil companies to show the largest earnings since 1929, the best year on record for the industry as a whole.

Profits Up in 1937

Figures are not yet available on the earnings for all 1937. But in view of published figures on profits of numerous oil companies in the first 6 or 9 months of the year and conditions prevailing in the final quarter, it is indicated that the industry as a whole obtained profit about 25 to 30 percent larger than in 1936, which also was one of the best years the industry has experienced.

As indicated in an accompanying chart, oil companies have shown steady and marked improvement in earning power in the past 6 years, after having operated generally at a loss in 1931, when the depression and the flood of oil in East Texas pushed prices down and wiped out profit margins.

Prospects for 1938

At present it is, of course, largely conjectural how well 1938 profits will compare with those of 1937, despite the indications that earnings will prove comparatively favorable.

So far, the crude oil division of the industry has been faring about as well in 1938 as in 1937, if not better. For in the early weeks of 1937, crude prices had not yet had the 10 percent rise that brought them to the present levels. And in early 1938 the demand for petroleum products has been running somewhat higher than in 1937, affording larger volumes of business.

Refiners Affected Adversely

In the refining division earning power in early 1938 has been smaller than in 1937, because of lower product prices, in the face of the maintenance of crude oil prices. Similarly, the profit margins have been lowered somewhat in the marketing division.

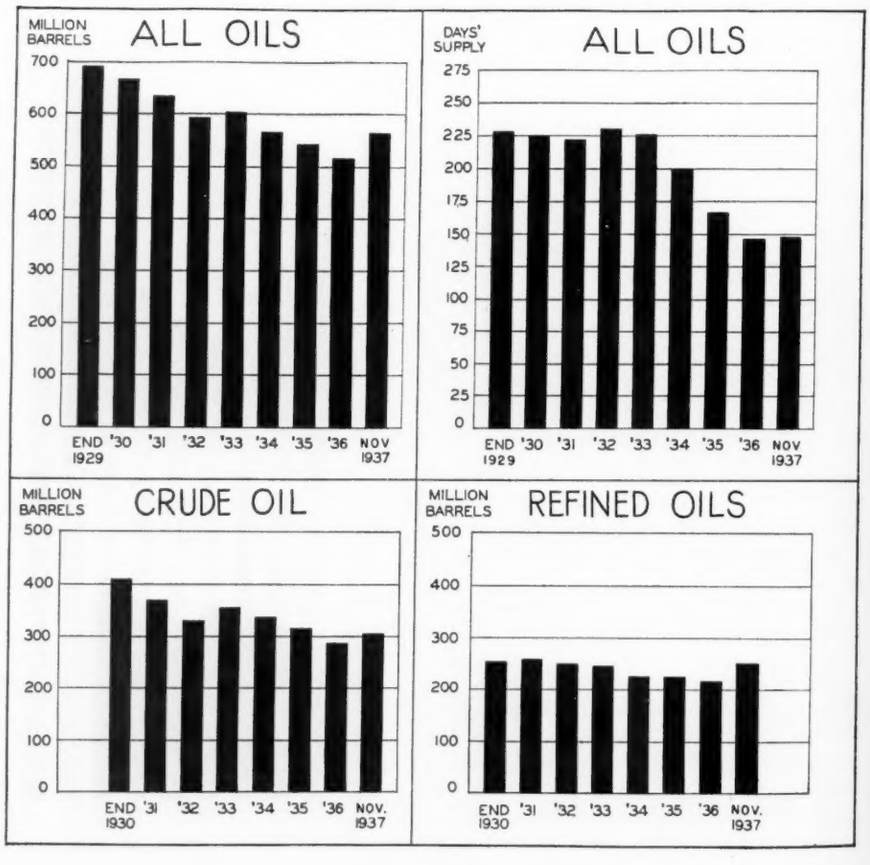
Thus for the refining and marketing companies and for integrated companies, earning power will be lower in 1938 than in 1937, unless product prices at the refineries and the service stations can be improved.

May Not Equal 1937

The industry as a whole, therefore, is not likely to be able to equal the earning record of 1937, unless product prices can be brought back nearer than now to the levels that prevailed prior to last fall.

Excessive Gasoline Stocks Mar Otherwise Favorable Oil Inventory Situation in the United States

Chart shows stocks on hand at end of each year, 1929-1936, and at end of November, 1937. It is based on United States Bureau of Mines figures.



However, it might be possible for the profits to be around the 1938 levels in the face of somewhat lower selling prices, if demand and volumes of business increase sufficiently to compensate for the price declines.

Oil Securities Down

If the securities markets are accepted as reliable forecasters of earning power, however, considerable doubt arises as to the profit outlook for the oil companies. For the securities of the oil concerns came down sharply in the protracted decline of 1937, about in proportion to stocks representing other lines of business.

In the sharp break of the stock market October 19, 1937, the prices of 66 oil company stocks averaged only about 50 percent of the averaged 1937 highs of those stocks.

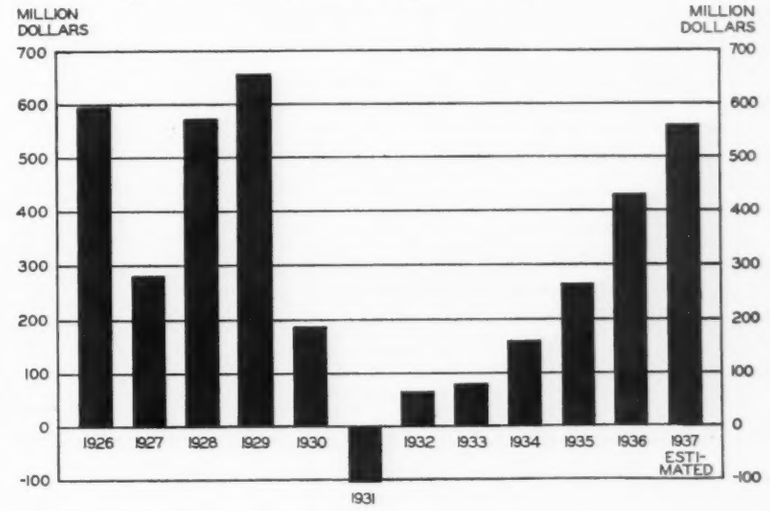
Favored by Some

However, many investors and speculators have consistently favored the securities of oil companies, as compared with those in some other lines, throughout the past year, as well as for some time previously.

Such preference for the oil shares has reflected opinion that the oil concerns may be able to fare better than enterprises of some other types, despite what the general economic future may hold.

Earnings of 44 Oil Companies for 1938 Estimated About 30 Percent Larger Than for 1937

Chart shows reported net profits for years 1926-1936 and estimated profit for 1937.



Prices of Oil Company Securities Declined in 1937, Although Earnings and Dividends Generally Were Up

Including data on a group of representative oil companies, this table affords a cross-section of recent financial results and trends in the industry. The table is based on information published in the "Monthly Oil Review" of Carl H. Pforzheimer & Company.

COMPANY	Price Range 1929-1935 High	Price Range 1929-1935 Low	Price Range 1936 High	Price Range 1936 Low	Price Range 1937 High	Price Range 1937 Low	Price Range 1937 Last	Earnings per Common Share: Interim Earnings Period	Interim Earnings 1936	Interim Earnings 1937	Earnings per Common Share: Year's Earnings in 1936	Dividends per Common Share 1936	Dividends per Common Share 1937
Amerada Corp	80	11¼	125½	75	114⅞	51½	56⅝	9 mos.	$1.78	$2.12	$2.52	$2.00	$2.00
Atlantic Refining Co	77⅞	8⅝	35½	26⅝	37	18	20	9 mos.	2.20	2.64	2.59	1.25	1.00
Barnsdall Oil Co	49⅛	3	28¼	14½	35¼	10	13¼	9 mos.	0.81	0.99	1.01	0.80	1.00
Consolidated Oil Corp	45	4	17¾	11½	17⅞	7	8⅞	6 mos.	0.49	0.67	1.18	0.80	0.90
Continental Oil Co	37¾	3⅝	44⅞	28⅛	49	24	29	9 mos.	1.72	2.48	2.05	1.50	1.50
Creole Petroleum Corp	23¾	1⅝	39	19⅞	38¾	20¼	23	.....	.....	.....	1.23	0.50	1.00
Gulf Oil Corp	‡209	‡ 23	‡117 59	‡ 72 54	63½	33	37¾	.....	.....	.....	2.90	⁋	1.00
Houston Oil Co	27⅛	1⅝	13⅞	6⅜	17⅝	4¾	6½	9 mos.	†0.09	0.77	†0.03	.....	.....
Humble Oil & Refining Co	64	‡ 35⅝	80	57	87	54⅞	65¼	.....	.....	.....	3.80	1.50	2.00
Mid-Continent Petroleum Corp	39⅞	3¾	30⅞	17¼	35⅝	14	18	9 mos.	2.26	2.48	2.57	1.15	1.50
Mountain Producers Co	22⅞	2	8⅜	5	7⅞	4⅛	5	.....	.....	.....	§0.62	0.60	0.60
Ohio Oil Co	34⅛	4¾	18	12⅛	22⅞	9	12⅝	9 mos.	0.57	1.20	0.70	0.60	1.00
Phillips Petroleum Co	47	2	52⅝	38⅛	64	30⅛	38	9 mos.	3.08	4.45	4.02	2.50	2.75
Plymouth Oil Co	37	6	27¾	11⅞	29⅞	13	17	9 mos.	1.21	2.01	1.65	0.90	1.65
Pure Oil Co	30¾	2½	24⅞	16	24⅝	8¾	11	9 mos.	0.94	1.77	1.63	.....	0.25
Seaboard Oil Co	69⅛	5½	44	30½	54⅛	16	20¼	9 mos.	1.48	1.43	2.00	1.00	1.00
Shell Union Oil Corp	31¾	2½	28¼	14¾	34⅝	14⅞	* 16⅝	9 mos.	1.14	1.11	1.36	0.25	1.00
Skelly Oil Co	46½	2	47⅜	19½	60⅝	26½	27¼	9 mos.	3.19	5.02	4.42	.....	1.50
Socony-Vacuum Oil Co	48⅛	5¼	17½	12½	23¾	13	15	6 mos.	0.63	1.01	1.38	0.70	0.80
South Penn Oil Co	60¼	9¼	44	32½	56	35	* 38	6 mos.	1.30	3.28	3.59	2.60	3.65
Standard Oil, California	81⅞	15⅛	47⅝	35	50	27⅛	29	9 mos.	1.28	2.39	1.79	1.20	2.00
Standard Oil, Indiana	63	13⅜	48½	32¾	50	26½	33⅛	6 mos.	1.45	1.84	3.09	2.40	2.30
Standard Oil, Kansas	49	7	31	25	43	30⅝	34	9 mos.	1.23	4.54	1.91	1.00	5.00
Standard Oil, Kentucky	46⅞	8⅜	23⅜	17⅛	21⅛	14¾	17	.....	.....	.....	1.46	1.35	1.50
Standard Oil, Nebraska	50¼	7¾	14⅝	11	13¾	8	9	.....	.....	.....	0.42	0.25	0.25
Standard Oil, New Jersey	84⅞	19⅞	70⅜	51⅛	76	42	45¼	.....	.....	.....	3.73	2.00	2.50
Standard Oil, Ohio	129	12¼	40	21¾	45	16	19¾	.....	.....	.....	4.77	2.00	1.50
Sun Oil Co	86⅛	24¾	91	70	77½	44½	47	6 mos.	1.57	1.90	3.44	*1.00	‡1.00
Texas Corp	71⅞	9¼	55¼	28⅞	65½	34¾	* 39¼	6 mos.	1.71	2.48	4.10	1.50	2.25
Texas Pacific Coal & Oil Co	23⅞	1⅝	15¼	7½	16⅝	5⅝	7⅛	9 mos.	0.53	0.81	0.72	0.25	0.40
Tide Water Associated Oil Co	23½	2	21¾	14¾	21⅝	13⅛	* 14¼	9 mos.	0.99	1.61	1.03	0.70	1.20
Union Oil Co. of California	57	8	28½	20¾	28¼	17½	18¾	9 mos.	1.00	1.90	1.40	1.00	1.40

‡ Old stock. ⁋ Also 100 percent stock dividend. * Ex-dividend. † Deficit. § Excludes non-recurring losses. * Also 6 percent in stock. ‡ Also 8 percent in stock.

Wherever there is commerce, oil is needed. At Rouen, France, oil for the city and surrounding territory is brought up the River Seine in barge tanks and is unloaded in water-front storage tanks underground.

—Ewing Galloway

Petroleum

Consumption steadily increasing throughout the world, indicating favorable outlook for industry.

A LOOK into the subject of the use of oil leads to enthusiasm over the market possibilities of the future and therefore to bullishness over the long-term outlook of the petroleum industry.

For it becomes readily apparent, through such a study, that the industry has been, still is, and probably henceforth will long continue to be a vigorously growing enterprise, with the whole world its market and most of the civilized millions its actual or potential customers.

In the beginning, less than a century ago, the industry gave the world curatives and light, and then also fuel and lubricants for operating machines.

In the early portion of this century kerosene still was the main product of the industry, and the lamp was the familiar emblem of a great oil company.

But other uses also were de-

World Consumption of Petroleum Products Has Been Steadily Increasing in Recent Years

This table has been compiled from information contained in "Petroleum Facts and Figures."

(Thousands of Barrels of 42 U. S. Gallons)

YEAR	All Petroleum Products	Gasoline	Gas Oil and Fuel Oil	Kerosene	Lubricants
1930...	.....	547,368	.....	.....	.....
1931...	.....	561,128	.....	.....	.....
1932...	1,327,807	528,609	529,405	103,022	38,504
1933...	1,406,923	536,684	552,846	110,659	41,552
1934...	1,507,599	586,126	602,292	120,134	43,829
1935...	1,614,475	621,092	651,382	124,442	46,902
1936...	1,757,780	674,825	707,920	129,930	51,215

The World Is on Wheels, Propelled by Oil

This table shows world registrations of motor vehicles at beginning of 1936, as given in "Petroleum Facts and Figures."

VEHICLES	United States	Outside United States	World Total
Passenger Cars....	22,455,638	8,081,729	30,537,367
Buses.....	115,479	269,355	384,834
Trucks.....	3,649,935	2,613,407	6,263,342
Diesel Powered....	.....	50,444	50,444
Total registrations.....	26,221,052	11,014,935	37,235,987
Total population	127,521,000	1,904,097,332	2,031,618,000
Population per Vehicle.....	4.85	172	54.5

World-wide use of automobiles makes gasoline pumps familar in all countries. This is a gasoline service station on a motor road just outside of Nanking, China.

—Ewing Galloway

Use Growing

By L. J. LOGAN
Associate Editor

veloping into substantial proportions, as railroads, steamships, power plants, and the early automobiles consumed increasing quantities of fuel oil, gasoline, and lubricants.

Golden Age Dawns

And finally, around the beginning of the World War, dawned the golden age of the industry, when automobiles came into practical and rapidly widening use, and when gasoline eventually displaced kerosene as the principal product of the industry.

In 1912 less than a million automobiles, motor trucks, and buses were in use in the United States. But phenomenal expansion of the number of motor vehicles lay just ahead. At the end of 1915 there were 2,500,000 motor vehicles on the roads, and by the end of 1920, the total had increased to about 9,000,000, including 8,000,000 passenger cars and 1,000,000 trucks and buses.

Scarcity Retards Use

Meanwhile, the oil industry had been managing to keep abreast of the rapidly increasing demand for gasoline, but around 1920 it began to falter over the responsibility of turning out so much oil. There was talk of an impending shortage of oil, and the average price of

The Americas and Europe Account for Bulk of World Consumption of Petroleum Products

United States uses exceptionally large quantities of gasoline and other petroleum products. But Europe leads in kerosene consumption and is large consumer of lubricants.

This table, based on data for 1936, shows world consumption of petroleum products, by continents. It was compiled from information in "Petroleum Facts and Figures."

AREA	ALL PRODUCTS		GASOLINE		FUEL OIL		KEROSENE		LUBRICANTS	
	Consumption (Thousand Barrels)	Percent of World Total	Consumption (Thousand Barrels)	Percent of World Total	Consumption (Thousand Barrels)	Percent of World Total	Consumption (Thousand Barrels)	Percent of World Total	Consumption (Thousand Barrels)	Percent of World Total
United States	1,090,000	62.01	482,000	71.42	405,000	57.20	50,000	38.48	22,500	43.93
North and Central America (exclusive of United States)	90,965	5.18	22,186	3.29	55,385	7.82	3,095	2.38	1,442	2.82
South America	50,825	2.89	11,396	1.69	28,363	4.01	2,848	2.19	872	1.70
Europe	408,240	23.23	127,272	18.85	168,015	23.73	53,465	41.15	21,368	41.72
Africa	15,335	0.87	5,916	0.88	4,852	0.69	3,294	2.54	550	1.07
Asia	81,945	4.66	15,933	2.37	39,190	5.54	15,648	12.04	3,855	7.53
Australia and Oceania	20,470	1.16	10,122	1.50	7,115	1.01	1,580	1.22	628	1.23
World Total	1,757,780	100.00	674,825	100.00	707,920	100.00	129,930	100.00	51,215	100.00

In Nearly All Countries, Consumption of Petroleum Products Has Been Steadily Expanding

This table shows world consumption of petroleum products, by countries, 1932-1936, as given in "Petroleum Facts and Figures."

(Thousands of Barrels of 42 U. S. Gallons)

COUNTRY	1932	1933	1934	1935	1936
Algeria	1,632	1,952	2,100	2,192	2,280
Argentina	19,018	20,214	20,786	23,204	25,260
Australia	7,947	10,280	11,099	11,909	12,440
Austria	1,647	2,085	2,187	2,565	2,685
Belgium	4,663	4,220	4,269	4,394	4,560
Brazil	4,861	5,776	6,185	6,602	6,790
British India	14,779	13,163	13,865	14,604	15,070
British Malaya	3,218	2,462	2,840	3,048	3,220
Canada	31,952	32,813	34,692	36,610	38,150
Chile	1,939	1,813	2,151	3,338	3,575
China	6,158	7,837	6,770	6,622	6,850
Cuba	3,748	2,403	4,356	4,381	4,460
Czechoslovakia	2,780	3,630	3,076	3,191	3,380
Denmark	4,419	4,386	4,937	4,680	4,850
Egypt	4,002	4,282	4,893	5,385	5,800
Finland	975	1,026	1,215	1,226	1,270
France	33,565	38,559	40,555	40,523	42,330
French Morocco	1,063	992	1,079	1,102	1,145
Germany	21,380	24,547	29,231	33,636	37,110
Greece	1,389	1,390	1,573	1,592	1,690
Hawaiian Islands	2,577	2,765	2,971	3,034	3,245
Hungary	1,198	1,366	1,615	1,419	1,460
Iran (Persia)	6,761	7,287	6,003	6,163	6,310
Iraq	1,013	1,448	2,198	3,108	3,355
Irish Free State	1,822	1,679	1,917	2,086	2,160
Italy	10,370	13,572	14,374	17,626	19,900
Japan	13,823	18,593	22,948	25,327	28,150
Mexico	14,633	15,735	16,334	16,938	17,330
Netherlands	6,167	7,703	7,620	8,582	8,980
Netherlands India	11,834	10,339	9,559	9,609	9,990
Netherlands W. I.	8,217	10,227	13,850	15,317	17,265
New Zealand	2,899	2,679	3,299	3,315	3,585
Norway	2,576	3,426	3,510	3,531	3,680
Panama Canal Zone	1,746	1,924	2,071	2,341	2,500
Peru	1,456	1,618	1,686	1,849	1,970
Philippine Islands	3,319	3,463	3,464	3,971	4,190
Poland	2,724	2,819	2,933	3,215	3,280
Portugal	1,045	1,145	1,325	1,472	1,550
Puerto Rico	1,432	1,365	1,451	1,538	1,625
Roumania	13,842	14,600	15,686	15,320	15,950
Spain	5,505	5,325	6,581	6,560	4,950
Sweden	5,516	6,324	6,366	7,069	7,480
Switzerland	2,967	3,013	3,373	3,356	3,370
Trinidad	3,128	2,482	2,782	4,133	4,295
Union of South Africa	2,997	3,397	4,213	4,932	5,210
U. S. S. R. (Russia)	99,115	109,234	117,300	127,377	134,700
United Kingdom	59,163	65,967	72,170	76,213	78,900
United States	835,482	868,488	920,165	981,650	1,090,000
Uruguay	2,154	2,257	2,370	2,381	2,570
Venesuela	5,757	5,854	6,241	7,135	7,755
Others	25,435	26,999	33,365	37,104	39,160
Total, World	1,327,807	1,406,923	1,507,599	1,614,475	1,757,780

Increasing quantities of oil are consumed in farm activities, as tractors and other machines take over the hard work formerly done by mules and men.

crude in the United States jumped in 1920 to $3.07 a barrel, with the result that consumption was temporarily retarded.

However, that high price stimulated the drilling of an all-time record number of wells in 1920, and the scarcity of oil was alleviated. Oil prices consequently were brought down, and the increase in the number of automobiles continued. In the 5 years following 1920, the number of motor vehicles in use more than doubled, jumping from 9,000,000 to approximately 20,000,000. In the next 4 years, 6,500,000 more vehicles came into use, the registrations having reached 26,500,000 by the end of 1929, of which more than 3,000,000 were trucks and buses.

Registrations at Peak

The depression halted the growth in use of automobiles, and further expansion was delayed 6 years, or until 1936. In that year and 1937 the increase in the use of motor vehicles was resumed, and there are now in use in the United States approximately 30,000,000 vehicles, an all-time record, including 25,-

Tractors are Coming into Wider Use on United States Farms

Figures given here are from "Petroleum Facts and Figures".

Beginning of Year	Number of Tractors	Percent Gain Over Previous Year
1925	505,933[1]	.....
1926	584,332	15.5
1927	665,038	13.8
1928	766,332	15.2
1929	826,183	7.8
1930	920,032[2]	11.4
1931	997,943	8.5
1932	1,051,646	5.4
1933	1,077,121	2.4
1934	1,090,203	1.2
1935	1,123,251	3.0
1935[3]	1,174,889	4.6
1936[4]	1,248,337	5.8

[1] U. S. Bureau of the Census.
[2] Census reported 920,021.
[3] As of July 1.
[4] As of April 1.

400,000 passenger cars, 5,250,000 motor trucks, and 127,000 motor buses.

Furthermore, economists look ahead and foresee further important expansion in the number of motor vehicles in the United States, despite the large number already in use.

Outside United States

In other countries, too, the use of automobiles has been steadily increasing. At the beginning of 1936, that is, two years ago, there were 11,014,935 motor vehicles in use in countries outside the United States, while the number operating in the United States was 26,221,052, making a world total at that time of 37,235,987 vehicles. Those outside the United States represented about 30 percent of the world total.

The countries outside the United States have larger proportions of the world totals of buses and trucks than of automobiles.

The growing use of motor vehicles throughout the world has resulted, of course, in steadily rising consumption of gasoline, and that gain in gasoline demand has been largely instrumental in bringing about expansion in world consumption of petroleum.

Figures are not yet available on world demand in 1937, but it is certain that the consumption reached a new all-time peak. For world consumption in recent years has been conforming closely with world production, and the world output in 1937 set a new record of 2,021,171,000 barrels, indicating that the world consumed within the year approximately 2,000,000,000 barrels of oil.

The past year was the first in which the world production and consumption reached the 2,000,000,000 barrel level.

In 1936, for which year figures are available, the world consumption of all petroleum products aggregated 1,757,780,000 barrels, after having increased steadily in the several preceding years. In 1932 the world demand had totaled but 1,327,807,000 barrels.

Thus in the past five years, or since 1932, the world requirements, having expanded to about 2,000,000,000 barrels, have shown the remarkable increase of about 50 percent.

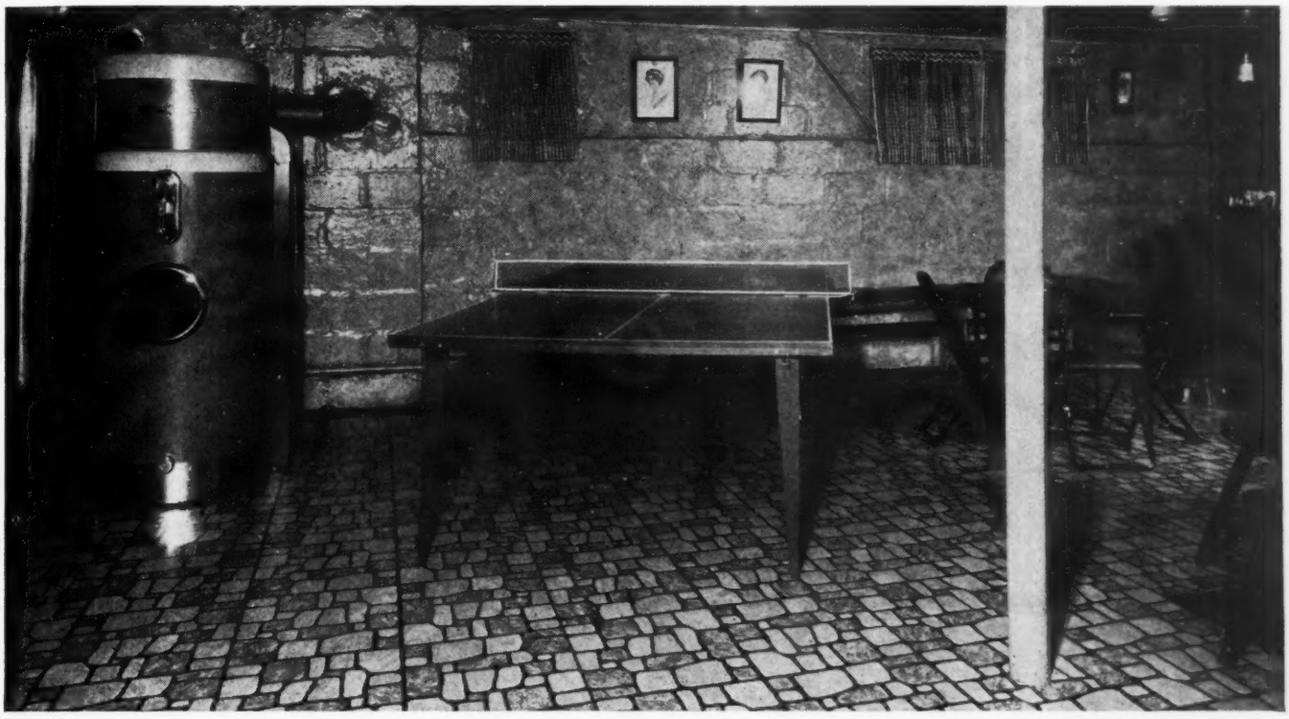
Gasoline Gains Steadily

World requirements for gasoline, stimulated by the growing use of motor vehicles, have increased steadily in recent years. They to-

Oil Burners Are Being Used in Increasing Numbers in Homes and Factories in the United States

This table shows sales, operation, and heating-oil consumption of domestic and industrial oil burners in the United States, for 1936, as estimated by the American Petroleum Institute.
(Estimated Data for 1936)

ITEM	Domestic Burners	Industrial Burners	Total
Burners operating at beginning of year	1,154,700	60,600	1,215,300
Sales	220,000	18,800	238,800
Total burners	1,374,700	79,400	1,454,100
Scrapped	22,000	1,900	23,900
Burners operating at end of year	1,352,700	77,500	1,430,200
Average number in use during year	1,253,700	69,100	1,322,800
Heating-Oil consumption: barrels	60,178,000	34,550,000	94,728,000
Per-burner consumption: barrels	48	500	.....



This domestic oil furnace, installed in a recreation room, illustrates the present leading use for fuel oil, most important product of the petroleum industry except gasoline. In consequence of steadily increasing sales and installations of domestic and industrial oil burners, the use of fuel oil for heating has surpassed that for bunkering ships, formerly the chief use.

—Ewing Galloway

taled 528,609,000 barrels in 1932, and had risen to 674,825,000 barrels in 1936, an increase of 27 percent in 4 years.

Fuel Use Up Sharply

In other countries as well as in the United States, there has been also a steady expansion in the demand for fuel oils in recent years, based in part on the revival of industrial activity and in substantial part on the steadily growing use of fuel oil for domestic and commercial heating.

In 1932 the world demand for fuel oil was almost exactly the same as that for gasoline, amounting to 529,405,000 barrels. But since that year the fuel oil consumption has been outrunning gasoline demand, having expanded to 707,920,000 barrels in 1936, as compared with the 674,825,000 barrels of gasoline used.

Burner Use Extensive

The sharp increase in world consumption of fuel oil has resulted in considerable measure from steadily expanding sales and installations of oil burners in the United States. At the beginning of 1937 there were 1,430,200 burners in operations, including 1,352,700 for heating homes and 77,500 industrial burners. And during the year sales and new installations continued heavy, as home construction and industrial activity were comparatively large.

For the coming year a continuation of large fuel oil consumption by oil burners is indicated, in view

—Eidson Studio

Motor vehicles and the gasoline and other oils for operating them have become virtual necessities of life in the United States. Total registrations of motor vehicles in the nation at the beginning of this year aggregated about 29,777,000, including 25,400,000 passenger cars, 4,250,000 trucks, and 127,000 motor buses.

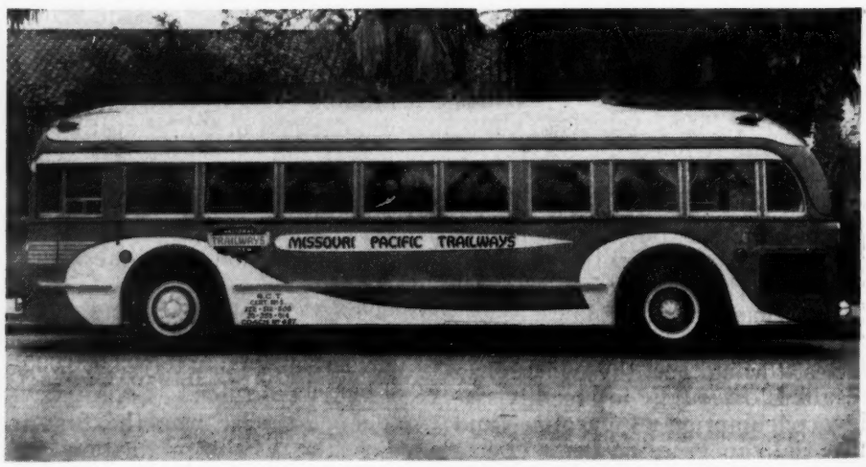
Motor Vehicle Registrations in the United States Have Increased from 4 in 1895 to 30,000,000 Now

These figures, showing registrations as of December 31, are from "Petroleum Facts and Figures."

End of Year	Passenger Cars	Motor Trucks and Buses	Total Motor Vehicles	Percent Increase Over Previous Year
1895	4	.....	4	.....
1896	16	.....	16	.....
1897	90	.....	90	.....
1898	800	.....	800	.....
1899	3,200	.....	3,200	.....
1900	8,000	.....	8,000	.....
1901	14,800	.....	14,800	85
1902	23,000	.....	23,000	55
1903	32,920	.....	32,920	43
1904	54,590	410	55,000	67
1905	77,400	600	78,000	42
1906	105,900	1,100	107,000	37
1907	140,300	1,700	142,000	33
1908	194,400	3,100	197,500	39
1909	305,950	6,050	312,000	58
1910	458,500	10,000	468,500	50
1911	619,500	20,000	639,500	36
1912	902,600	41,400	944,000	48
1913	1,194,262	63,800	1,258,062	33
1914	1,625,739	85,600	1,711,339	36
1915	2,309,666	136,000	2,445,666	43
1916	3,297,996	215,000	3,512,996	44
1917	4,657,340	326,000	4,983,340	42
1918	5,621,617	525,000	6,146,617	23
1919	6,771,074	794,372	7,565,446	23
1920	8,225,859	1,006,082	9,231,941	22
1921	9,346,195	1,117,100	10,463,295	13
1922	10,862,650	1,375,725	12,238,375	17
1923	13,479,608	1,612,569	15,092,177	23
1924	15,460,649	2,134,724	17,595,373	17
1925	17,496,420	2,440,854	19,937,274	13
1926	19,237,171	2,764,222	22,001,393	10
1927	20,219,224	2,914,019	23,133,243	5
1928	21,379,125	3,113,999	24,493,124	6
1929	23,121,589	3,379,854	26,501,443	8
1930	23,059,262	3,486,019	26,545,281	0.16
1931	22,366,313	3,466,571	25,832,884	— 2.5
1932	20,885,814	3,229,315	24,115,129	— 6.7
1933	20,616,234	3,227,357	23,843,591	— 1.12
1934	21,501,144	3,450,518	24,951,662	4.5
1935	22,546,811	3,684,023	26,230,834	5.1
1936	24,156,606	4,064,685	28,221,291	7.6
1937*	25,400,000	†4,377,000	29,777,000	5.5

* Estimated by Automobile Manufacturers' Association.

† Includes 4,250,000 trucks and 127,000 motor buses.



Motor buses, used between cities and within cities, are not so numerous as automobiles or trucks, about 127,000 being in service in the United States at present. But because of their size and weight, they account for a sizable proportion of the gasoline consumption.

Use of Motor Boats in the United States is Consistently Increasing

This table shows registrations of motor boats, as given in "Petroleum Facts and Figures".

End of Year	Motor Boats Registered
1919	111,791
1920	130,826
1921	148,482
1922	159,701
1923	173,307
1924	186,441
1925	198,636
1926	208,037
1927	219,575
1928	230,582
1929	241,040
1930	248,448
1931	258,531
1932	263,599
1933	291,018
1934	305,624
1935 (June 30)	311,123

of the present number of burners in use and prospects for substantial sales and installations in 1938.

Ships Use Much Fuel

Although domestic and commercial heating now require more fuel oil than any other use, the steamships, formerly leading users, continue to consume large quantities.

The railroads rank third in consumption of fuel oil, although using considerably less than the steamships.

Substantial quantities also are used by the oil companies, as fuel in drilling and for other purposes.

Gas and electric power plants, likewise, are important consumers of fuel oil, and the product finds considerable use in smelters and mines and in various manufacturing operations.

Kerosene and Lubricants

Requirements for two other leading products of the petroleum industry, kerosene and lubricants, have been showing increases that have compared favorably with the gains in gasoline and fuel oil use.

World consumption of kerosene rose from 103,022,000 barrels in 1932 to 129,930,000 barrels in 1936, an increase of 26 percent in only 4 years.

Stimulated by the revival of industrial activity, world demand for lubricants expanded from 38,504,000 barrels in 1932 to 51,215,000 barrels in 1936, an increase of 33 percent in 4 years.

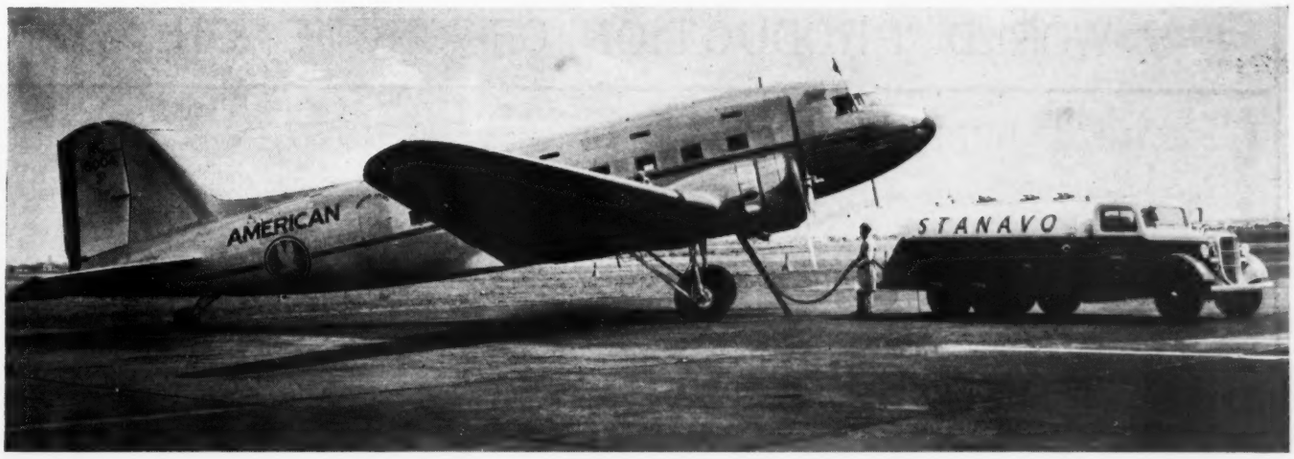
Homes, Steamships, and Railroads are Leading Users of Gas Oil and Fuel Oil in the United States

This table, based on data for 1935, shows the various uses of gas oil and fuel oil, as given in "Petroleum Facts and Figures".

USE	Shipments in 1935 (Thousands of Barrels)
Railroads	55,651
Steamships (including tankers)	74,581
Gas and electric power plants	23,647
Smelters and mines	2,448
Other manufacturing	61,128
Domestic heating	76,853†
U. S. Navy, Army transports, etc.	10,428
Used as fuel by oil companies	48,116
Miscellaneous uses	13,133
Total domestic shipments	365,985
Exports and other shipments	28,948
Total distribution	394,933
Range oil	21,526

† All heating oils, domestic and commercial.

Even at this stage of the aviation industry, airplanes are substantial consumers of oils. The powerful motors require comparatively large quantities of fuel, and the number of planes in use is increasing steadily. Here is a plane being fueled from an oil company truck at Love Field, Dallas.



Airplanes in the United States are Using Increasing Quantities of Gasoline and Lubricants

This table, showing consumption by aircraft in the United States, is based on data in "Petroleum Facts and Figures"

Year	Gasoline Consumption (Gallons)					Lubricating Oil Consumption (Gallons)					Total Civil Aircraft Mileage	
	Air Lines	Other Civil	Total Civil	Government Aircraft	Grand Total	Air Lines	Other Civil	Total Civil	Government Aircraft	Grand Total	Thousands of Miles Flown	Percent Increase Over Previous Year
1926	863,617	2,426,028	3,289,645	.....	.....	43,181	121,301	164,482	.....	.....	23,065	....
1927	1,174,098	3,882,351	5,056,449	.....	.....	58,705	194,118	252,823	.....	.....	35,870	55.5
1928	2,134,690	7,764,702	9,899,392	.....	.....	106,735	388,235	494,970	.....	.....	70,673	97.0
1929	6,285,374	14,235,243	20,520,617	.....	.....	314,268	711,762	1,026,030	.....	.....	135,141	91.1
1930	14,549,477	13,981,331	28,530,808	.....	.....	452,952	700,567	1,153,519	.....	.....	145,215	7.4
1931	19,157,382	11,658,009	30,815,391	.....	.....	642,980	535,689	1,178,669	.....	.....	141,729	— 2.3
1932	23,686,948	10,293,599	33,980,547	.....	.....	702,021	411,744	1,113,765	.....	.....	129,112	— 8.9
1933	26,326,796	8,861,104	35,187,900	.....	.....	924,411	368,681	1,293,092	.....	.....	125,866	— 2.5
1934	25,136,274	9,630,869	34,767,143	23,647,113	58,414,256	838,756	348,985	1,187,741	970,547	2,158,288	124,389	— 1.2
1935	33,260,609	11,104,259	44,364,868	29,319,412	73,684,280	879,775	334,420	1,214,195	1,078,030	2,292,225	148,296	19.2

Production

By L. J. LOGAN
Associate Editor

IT appears virtually certain that world production of crude oil will increase further in 1938 and again reach a new all-time peak, following the breaking of all previous records in 1937.

For the trends of production in recent years have been so consistently and so sharply upward that nothing short of a world-wide depression of extreme severity would be likely to turn the trend back downward. And it might require more than a year of even such a depression to arrest the upward movement.

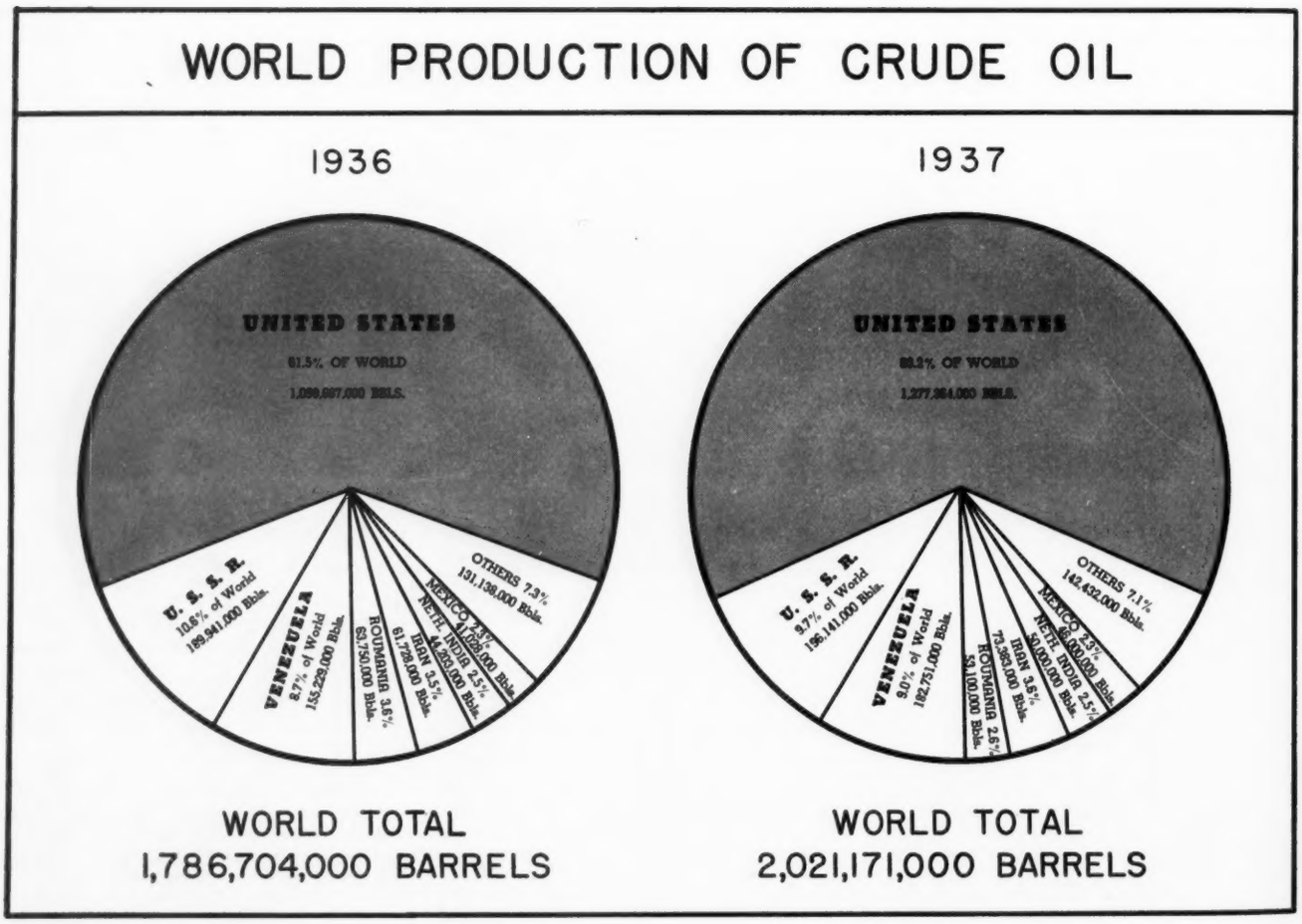
The vast expansion of world crude oil production that is under way, in response to vigorously growing demand for oils, is impressively realized by considering the record for the past 5 years.

In the five-year period since 1932, world production of crude oil has increased 54 percent, as the output in 1937 was 2,021,171,000 barrels, compared with 1,309,677,000 barrels in 1932.

Within that period, each year showed an increase over the previous one, and the largest annual increase was in 1937. The 1933 production was 10.1 percent greater than in 1932, and there were further increases of 5.5 percent in 1934, of 8.4 percent in 1935, of 8.2 percent in 1936, and of 13.2 percent in 1937. The world production rose above 2,000,000,000 barrels for the first time in 1937.

The basically increasing trend of world production is reflected also in the resistance that the output showed to the recent major depression.

World production of crude oil reached a pre-depression peak of



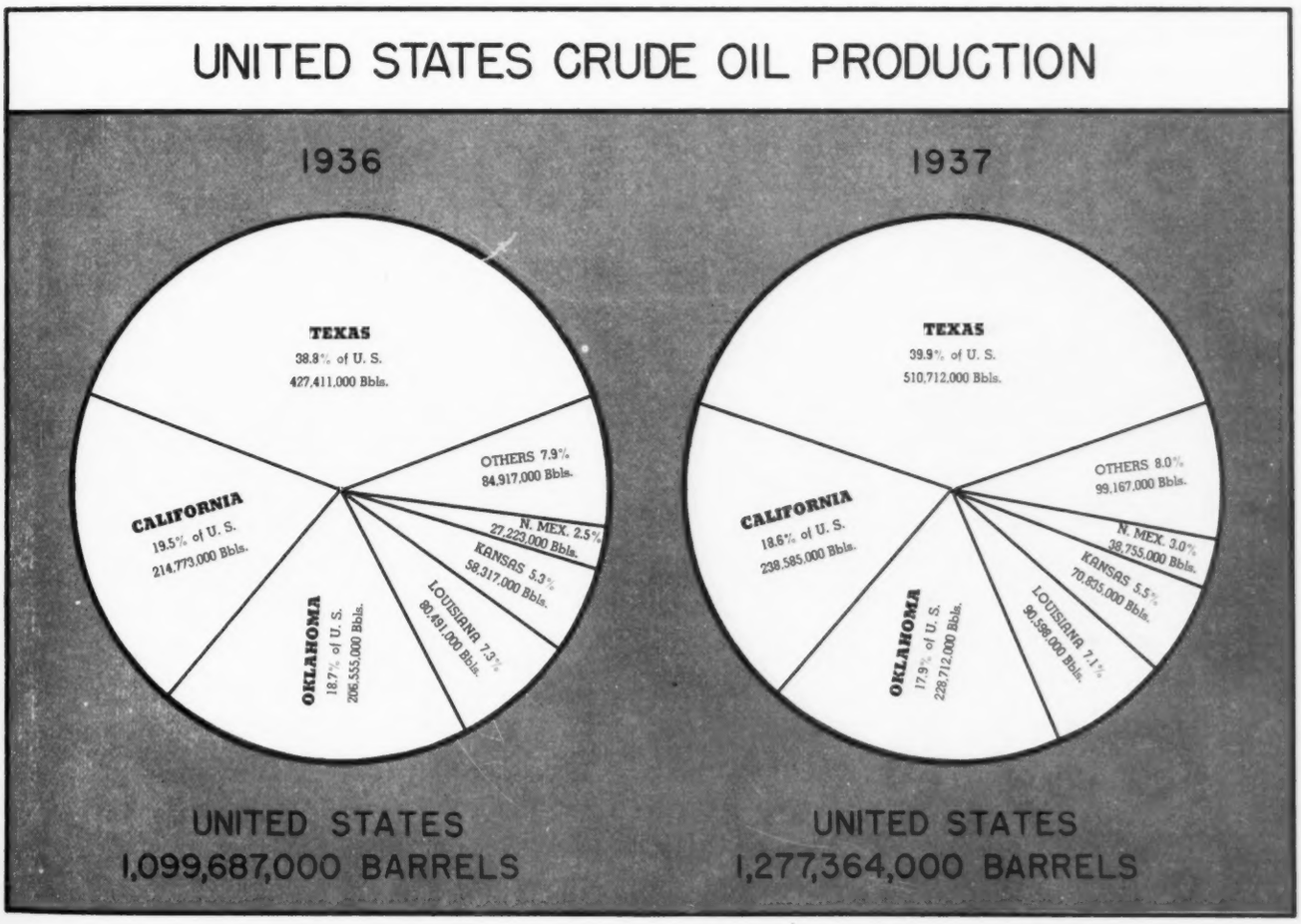
Increasing

World output likely to rise to new all-time peak in 1938, after having broken all previous records in 1937

1,485,867,000 barrels in 1929. The output then declined in each of the three years, 1930, 1931, and 1932, but in each of those years the decrease from the previous year was only about 5 percent or less; and at the depression bottom in 1932, the production was down only 12 percent from the 1929 peak.

In arriving at the forecast that world production of crude oil will proceed in 1938 to a new all-time peak, consideration is given also to the trends and circumstances in the various producing countries.

In that connection, it is noteworthy that the world trend of production depends largely on the trend in the United States, the largest producing country. And an increase or decrease in the United



States normally causes a similar change in world production.

Consequently, for the expected increase in world output to fail to materialize in 1938, it probably would be necessary for the United States to show a sizable decline—that is, to drop sufficiently below 1937 output to cancel a probable further increase in other countries.

And a decline in United States production does not at present appear likely. On the other hand, the United States output in early 1938 has been running substantially higher than in 1937, and it is quite probable that 1938 as a whole also will show an increase. This prospect looms in view of the fact that petroleum demand in the United States continues to show a year-to-

World Crude Oil Production, by Countries, by Years

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	Rumania	United States	Italy	Canada	Russia except Sakhalin	Poland (Galacia)	Japan and Taiwan	Germany	India (British)	Netherland India	Peru	Mexico	Argentina	Trinidad	YEAR
1857	[A]1,977	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1857
1858	3,560	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1858
1859	4,349	[A]2,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1859
1860	8,542	500,000	[A]36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1860
1861	17,279	2,113,609	29	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1861
1862	23,193	3,056,690	29	[A]11,775	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1862
1863	27,943	2,611,309	58	82,814	[A]40,816	.....	.....	.....	.....	.....	.....	.....	.....	.....	1863
1864	33,013	2,116,109	72	90,000	64,586	.....	.....	.....	.....	.....	.....	.....	.....	.....	1864
1865	39,017	2,497,700	2,265	110,000	66,542	.....	.....	.....	.....	.....	.....	.....	.....	.....	1865
1866	42,534	3,597,700	992	175,000	83,052	.....	.....	.....	.....	.....	.....	.....	.....	.....	1866
1867	50,838	3,347,300	791	190,000	119,917	.....	.....	.....	.....	.....	.....	.....	.....	.....	1867
1868	55,369	3,646,117	367	200,000	88,327	.....	.....	.....	.....	.....	.....	.....	.....	.....	1868
1869	58,533	4,215,000	144	220,000	202,308	.....	.....	.....	.....	.....	.....	.....	.....	.....	1869
1870	83,765	5,260,745	86	250,000	204,618	.....	.....	.....	.....	.....	.....	.....	.....	.....	1870
1871	90,030	5,205,234	273	269,397	165,129	.....	.....	.....	.....	.....	.....	.....	.....	.....	1871
1872	91,251	6,293,194	331	308,100	184,391	.....	.....	.....	.....	.....	.....	.....	.....	.....	1872
1873	104,036	9,893,786	467	365,052	474,379	.....	.....	.....	.....	.....	.....	.....	.....	.....	1873
1874	103,177	10,926,945	604	168,807	583,751	[A]149,837	.....	.....	.....	.....	.....	.....	.....	.....	1874
1875	108,569	8,787,514	813	220,000	697,364	158,522	[A]4,566	.....	.....	.....	.....	.....	.....	.....	1875
1876	111,314	9,132,669	2,891	312,000	1,320,528	164,157	7,708	.....	.....	.....	.....	.....	.....	.....	1876
1877	108,569	13,350,363	2,934	312,000	1,800,720	169,792	9,560	.....	.....	.....	.....	.....	.....	.....	1877
1878	109,300	15,396,868	4,329	312,000	2,400,960	175,420	17,884	.....	.....	.....	.....	.....	.....	.....	1878
1879	110,007	19,914,146	2,891	575,000	2,761,104	214,800	23,457	.....	.....	.....	.....	.....	.....	.....	1879
1880	114,321	26,286,123	2,035	350,000	3,001,200	229,120	25,497	[A]9,310	.....	.....	.....	.....	.....	.....	1880
1881	121,511	27,661,238	1,237	275,000	3,601,441	286,400	16,751	29,219	.....	.....	.....	.....	.....	.....	1881
1882	136,610	30,349,897	1,316	275,000	4,537,815	330,076	15,549	58,025	.....	.....	.....	.....	.....	.....	1882
1883	139,486	23,449,633	1,618	250,000	6,002,401	365,160	20,473	26,708	.....	.....	.....	.....	.....	.....	1883
1884	210,667	24,218,438	2,855	250,000	10,804,577	408,120	27,923	46,161	.....	.....	.....	.....	.....	.....	1884
1885	193,411	21,858,785	1,941	250,000	13,924,596	465,400	29,237	41,360	.....	.....	.....	.....	.....	.....	1885
1886	168,606	28,064,841	1,575	584,061	18,006,407	305,884	37,916	73,864	.....	.....	.....	.....	.....	.....	1886
1887	181,907	28,283,483	1,496	525,655	18,367,781	343,832	28,645	74,284	.....	.....	.....	.....	.....	.....	1887
1888	218,576	27,612,025	1,251	695,203	23,048,787	466,537	37,436	84,782	.....	.....	.....	.....	.....	.....	1888
1889	297,666	35,163,513	1,273	704,690	24,809,407	515,268	52,811	68,217	[A]94,250	.....	.....	.....	.....	.....	1889
1890	383,227	45,823,572	2,998	795,030	28,691,218	659,012	51,420	108,296	118,065	.....	.....	.....	.....	.....	1890
1891	488,201	54,292,655	8,305	755,298	34,573,181	630,730	52,917	108,929	190,131	.....	.....	.....	.....	.....	1891
1892	593,175	50,514,657	18,321	779,753	35,774,504	646,220	68,901	101,404	242,284	.....	.....	.....	.....	.....	1892
1893	535,655	48,431,066	19,069	798,406	40,456,519	692,669	106,384	99,390	298,969	[A]600,000	.....	.....	.....	.....	1893
1894	507,255	49,344,516	20,552	829,104	36,375,428	949,146	[B]173,000	122,564	327,218	688,170	.....	.....	.....	.....	1894
1895	575,200	52,892,276	25,843	726,138	46,140,174	1,452,999	170,000	121,277	371,536	1,215,757	.....	.....	.....	.....	1895
1896	543,348	60,960,361	18,149	726,822	47,220,633	2,443,080	237,000	145,061	429,979	1,427,132	[A]47,536	.....	.....	.....	1896
1897	570,886	60,475,516	13,892	709,857	54,399,568	2,226,368	262,000	165,745	545,704	2,551,649	70,831	.....	.....	.....	1897
1898	776,236	55,364,233	14,489	758,391	61,609,357	2,376,108	319,000	183,427	542,110	2,964,035	70,905	.....	.....	.....	1898
1899	1,425,777	57,070,850	16,121	808,570	65,954,968	2,313,047	539,000	192,232	940,971	1,795,961	89,166	.....	.....	.....	1899
1900	1,628,535	63,620,529	12,102	913,498	75,779,417	2,346,505	871,000	358,297	1,078,264	2,253,355	274,800	.....	.....	.....	1900
1901	1,678,320	69,389,194	16,150	756,679	85,168,556	3,251,544	1,117,000	313,630	1,430,716	4,013,710	274,800	[A]10,345	.....	.....	1901
1902	2,059,935	88,766,916	18,933	530,624	80,540,044	4,142,159	996,000	353,674	1,617,363	2,430,465	286,725	40,200	.....	.....	1902
1903	2,763,117	100,461,337	17,876	486,637	75,591,256	5,234,475	1,209,000	445,818	2,510,259	5,770,056	278,092	75,375	.....	.....	1903
1904	3,599,026	117,080,960	25,476	552,578	78,536,655	5,947,383	1,219,000	637,431	3,385,468	6,508,485	[B]290,000	125,625	.....	.....	1904
1905	4,420,987	134,717,580	44,027	634,095	54,960,270	5,765,317	1,347,000	560,963	4,137,098	7,849,896	373,000	251,250	.....	.....	1905
1906	6,378,184	126,493,936	53,577	569,753	58,897,311	5,467,967	1,564,000	578,610	4,015,803	8,180,657	531,000	502,500	.....	.....	1906
1907	8,118,207	166,095,335	59,875	788,872	61,850,734	8,455,841	1,718,000	756,631	4,344,162	9,982,597	751,000	1,005,000	[A]101	.....	1907
1908	8,252,157	178,527,355	50,966	527,987	62,186,447	12,612,295	1,871,000	1,009,278	5,047,038	10,283,357	945,000	3,932,900	11,472	[A]169	1908
1909	9,327,278	183,170,874	42,388	420,755	65,970,350	14,932,799	1,887,000	1,018,837	6,676,517	11,041,852	1,411,000	2,713,500	18,431	57,143	1909
1910	9,723,806	209,557,248	50,830	315,895	70,336,574	12,673,688	1,829,000	1,032,522	6,137,990	11,030,620	1,258,000	3,634,080	20,753	142,857	1910
1911	11,107,450	220,449,391	74,709	291,096	66,183,691	10,519,270	1,737,000	1,017,045	6,451,203	12,172,949	1,465,000	12,552,798	13,119	285,307	1911
1912	12,976,232	222,935,044	53,778	243,336	68,019,208	8,535,174	1,659,000	1,031,050	7,116,672	10,845,624	1,752,000	16,558,215	47,007	436,805	1912
1913	13,554,768	248,446,230	47,198	228,080	62,834,356	7,818,130	1,940,000	[B]857,000	7,930,149	11,172,294	2,071,000	25,696,291	130,618	503,616	1913
1914	12,826,579	265,762,535	39,849	214,805	67,020,522	[B]6,436,000	2,636,000	781,000	7,409,792	[B]11,422,000	1,837,000	26,235,403	275,500	643,533	1914
1915	12,029,913	281,104,104	43,898	215,464	68,548,062	5,352,000	2,928,000	703,000	8,202,674	11,920,000	2,579,000	32,910,508	[B]513,000	750,000	1915
1916	8,945,029	300,767,158	50,585	198,123	[B]65,817,000	6,587,000	2,963,000	656,000	8,491,137	12,547,000	2,593,000	39,817,402	867,000	928,581	1916
1917	3,720,760	335,315,601	40,763	213,832	63,072,000	6,228,000	2,861,000	642,000	8,078,843	13,180,000	2,577,000	55,292,770	1,218,000	1,602,312	1917
1918	[B]8,730,000	355,927,716	[B]35,000	304,741	27,168,000	6,032,000	2,441,000	270,000	[B]8,188,000	12,778,000	2,527,000	[B]63,828,000	1,353,000	2,082,068	1918
1919	6,618,000	[B]378,367,000	35,000	[B]241,000	31,752,000	6,096,000	2,238,000	265,000	8,736,000	15,508,000	2,628,000	87,073,000	1,331,000	[B]1,841,000	1919
1920	7,435,000	442,929,000	35,000	196,000	25,430,000	5,607,000	2,221,000	246,000	8,375,000	17,529,000	2,817,000	157,069,000	1,651,000	2,083,000	1920
1921	8,368,000	472,183,000	32,000	188,000	28,968,000	5,167,000	2,233,000	274,000	8,734,000	16,958,000	3,699,000	193,398,000	2,036,000	2,354,000	1921
1922	9,843,000	557,531,000	31,000	179,000	35,692,000	5,227,000	2,055,000	319,000	8,529,000	17,066,000	5,314,000	182,278,000	2,866,000	2,445,000	1922
1923	10,867,000	732,407,000	34,000	170,000	39,147,000	5,402,000	1,804,000	346,000	8,406,000	19,870,000	5,699,000	149,585,000	3,400,000	3,051,000	1923
1924	13,369,000	713,940,000	39,000	161,000	45,355,000	5,657,000	1,814,000	406,000	8,416,000	20,473,000	8,379,000	139,678,000	4,639,000	4,057,000	1924
1925	16,650,000	763,743,000	61,000	332,000	52,448,000	5,960,000	1,915,000	541,000	8,274,000	21,422,000	9,232,000	115,515,000	6,336,000	4,387,000	1925
1926	23,314,000	770,874,000	41,000	364,000	64,311,000	5,844,000	1,785,000	653,000	8,011,000	21,243,000	10,762,000	90,421,000	7,851,000	4,971,000	1926
1927	26,368,000	901,129,000	47,000	477,000	77,018,000	5,342,000	1,789,000	663,000	8,032,000	27,459,000	10,127,000	64,121,000	8,630,000	5,380,000	1927
1928	30,773,000	901,474,000	46,000	624,000	[B]84,745,000	5,492,000	1,944,000	630,000	8,741,000	32,118,000	12,006,000	50,151,000	9,070,000	7,684,000	1928
1929	34,758,000	1,007,323,000	45,000	1,117,000	[B]99,507,000	4,988,000	2,023,000	704,000	8,747,000	39,279,000	13,422,000	44,688,000	9,391,000	8,716,000	1929
1930	42,759,000	898,011,000	59,000	1,522,000	[B]125,555,000	4,904,000	2,047,000	1,222,000	8,887,000	41,729,000	12,449,000	39,530,000	9,002,000	9,419,000	1930
1931	49,741,000	851,081,000	124,000	1,543,000	162,842,000	4,662,000	1,966,000	1,608,000	8,715,000	35,539,000	10,089,000	33,039,000	11,709,000	9,744,000	1931
1932	53,815,000	785,159,000	208,000	1,044,000	154,367,000	4,116,000	1,630,000	1,608,000	8,817,000	39,001,000	9,899,000	32,805,000	13,139,000	10,126,000	1932
1933	54,020,000	905,656,000	204,000	1,145,000	154,840,000	4,072,000	1,455,000	1,665,000	8,743,000	42,606,000	13,257,000	34,001,000	13,691,000	9,561,000	1933
1934	62,063,000	908,065,000	151,000	1,417,000	174,318,000	3,913,000	1,834,000	2,187,000	10,503,000	46,925,000	16,314,000	38,172,000	14,024,000	10,894,000	1934
1935[1]	61,371,000	996,596,000	112,000	1,447,000	182,386,000	3,812,000	2,259,000	2,967,000	9,218,000	42,319,000	17,067,000	40,241,000	14,295,000	11,671,000	[1]1935
1936[1]	63,750,000	1,099,687,000	116,000	1,508,000	189,941,000	3,777,000	2,445,000	3,087,000	9,619,000	44,203,000	17,595,000	41,028,000	15,455,000	13,237,000	[1]1936
1937[1]	53,100,000	1,277,364,000	150,000	2,670,000	196,141,000	3,485,000	2,689,000	3,143,000	9,810,000	50,000,000	17,455,000	46,000,000	16,300,000	15,500,000	[1]1937
Total	780,390,176	19,972,090,719	2,542,718	40,770,770	3,771,601,907	250,998,251	75,265,035	37,417,041	273,663,365	777,872,621	222,562,855	1,863,975,162	169,284,001	144,553,391	Total

[A] Actual numbers of barrels are shown prior to 1918, as reported in *Mineral Resources*, 1918; except in cases where revisions have been made in later reports, with such revisions being in thousands of barrels.

[B] Figures beginning with this year are shown in nearest thousand barrels, being from *Mineral Resources* of 1930, and 1931; and from *Minerals Yearbook* in subsequent years.

[C] Production of France in previous years credited to Germany.

[D] No more data available.

year increase, indicating that total demand of 1938 may exceed that of 1937.

Outside of the United States, there has been for many years only a one-way trend of crude production—gradually and consistenly upward. Even the recent, severe, world-wide depression did not turn downward the trend of production of countries outside the United States, considered in the aggregate; although some countries have from time to time experienced declines in output.

Thus, while the world production contracted in 1930, 1931, and 1932, because of the dominant influence of declining output in the United States, there occurred in

World Crude Oil Production, by Countries, by Years—(Continued)

Complete Production History of World, in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* of the United States, 1918, 1930 and 1931; *Minerals Yearbook*, 1932, 1933 and subsequent years. Note: The figures of *Mineral Resources*, 1918, have been replaced here by figures from later reports, in cases where revisions have been made.)

YEAR	Egypt	Iran (Persia)	British Borneo (Sarawak And Brunei)	Algeria	Ecuador	Venezuela	France	England	Czecho-slovakia	Sakhalin	Colombia	Iraq	Bolivia	Bahrein Island	Other Countries	Total World	Percent Produced by U.S.	YEAR
1857																1,977		1857
1858																3,560		1858
1859																6,349	31	1859
1860																508,578	98	1860
1861																2,130,917	99	1861
1862																3,991,692	99	1862
1863																2,762,940	94	1863
1864																2,303,780	92	1864
1865																2,715,524	92	1865
1866																3,799,278	92	1866
1867																3,708,846	90	1867
1868																3,990,180	91	1868
1869																4,695,985	90	1869
1870																5,799,214	91	1870
1871																5,730,063	91	1871
1872																6,877,267	92	1872
1873																10,837,720	91	1873
1874																11,933,121	92	1874
1875																9,977,348	88	1875
1876																11,051,267	83	1876
1877																15,753,938	85	1877
1878																18,416,761	84	1878
1879																23,601,405	84	1879
1880																30,017,606	88	1880
1881																31,992,797	86	1881
1882																35,704,288	85	1882
1883																30,255,479	78	1883
1884																35,968,741	67	1884
1885																36,764,730	59	1885
1886																47,243,154	59	1886
1887																47,807,083	59	1887
1888																52,164,597	53	1888
1889																61,507,095	57	1889
1890																76,632,838	60	1890
1891																91,100,347	60	1891
1892																88,739,219	57	1892
1893																92,038,127	53	1893
1894																89,336,953	55	1894
1895																103,691,200	51	1895
1896																114,199,101	53	1896
1897																121,992,016	50	1897
1898																124,978,293	44	1898
1899																131,146,663	44	1899
1900																149,136,302	43	1900
1901															20,000	167,440,644	41	1901
1902															26,000	181,809,038	49	1902
1903															36,000	194,879,298	52	1903
1904															40,000	217,948,084	54	1904
1905															30,000	215,091,483	63	1905
1906															30,000	213,263,298	59	1906
1907															30,000	263,956,355	63	1907
1908															30,000	285,287,421	63	1908
1909															20,000	298,708,724	61	1909
1910															20,000	327,763,863	64	1910
1911	[B]21,000														20,000	344,361,028	64	1911
1912	214,000														20,000	352,443,145	63	1912
1913	98,000	[B]1,857,000	[B]141,000												20,000	395,345,730	64	1913
1914	753,000	2,910,000	318,000	[B]1,000											20,000	407,542,518	65	1914
1915	212,000	3,616,000	392,000	4,000											10,000	432,033,623	65	1915
1916	404,000	4,477,000	629,000	8,000											25,000	456,771,015	66	1916
1917	943,000	7,147,000	542,000	9,000	[B]57,000	[B]120,000	C								29,000	502,889,881	67	1917
1918	1,935,000	8,623,000	504,000	7,000	[F]60,000	333,000	[B]363,000								25,000	503,514,525	71	1918
1919	1,517,000	10,139,000	596,000	5,000	[F]60,000	425,000	334,000	[B]2,000	[B]48,000						20,000	535,875,000	68	1919
1920	1,042,000	12,230,000	1,020,000	4,000	[F]60,000	457,000	356,000	3,000	69,000						20,000	688,884,000	64	1920
1921	1,255,000	16,673,000	1,411,000	3,000	[F]60,000	1,433,000	389,000	3,000	94,000	[B]2,000	[B]67,000				20,000	766,002,000	62	1921
1922	1,188,000	22,247,000	2,849,000	9,000	[F]60,000	2,201,000	496,000	1,000	120,000	7,000	323,000				22,000	858,898,000	65	1922
1923	1,054,000	25,230,000	3,940,000	9,000	87,000	4,201,000	494,000	1,000	74,000	9,000	425,000				24,000	1,015,736,000	72	1923
1924	1,122,000	32,373,000	4,163,000	11,000	[H]100,000	9,042,000	497,000	2,000	76,000	80,000	445,000				24,000	1,014,318,000	70	1924
1925	1,226,000	35,038,000	4,257,000	12,000	160,000	19,687,000	459,000	3,000	158,000	87,000	1,007,000				23,000	1,068,933,000	71	1925
1926	1,188,000	35,842,000	4,942,000	9,000	214,000	36,911,000	478,000	2,000	150,000	181,000	6,444,000				17,000	1,096,823,000	70	1926
1927	1,267,000	39,688,000	4,943,000	8,000	537,000	63,134,000	504,000	2,000	112,000	440,000	15,014,000	[B]338,000			13,000	1,262,582,000	71	1927
1928	1,842,000	43,461,000	[G]5,223,000	8,000	1,084,000	105,749,000	512,000	1,000	94,000	677,000	19,897,000	713,000			15,000	1,324,774,000	68	1928
1929	1,868,000	42,145,000	5,290,000	20,000	1,381,000	137,472,000	535,000	D	93,000	[E]1,134,000	20,385,000	798,000	H		38,000	1,485,867,000	68	1929
1930	1,996,000	45,833,000	4,907,000	16,000	1,553,000	136,669,000	523,000	H	157,000	[E]1,805,000	20,346,000	909,000	[B]56,000		40,000	1,411,905,000	64	1930
1931	2,038,000	44,376,000	3,854,000	D	1,762,000	116,613,000	527,000	D	134,000	2,734,000	18,237,000	900,000	25,000		54,000	1,373,656,000	62	1931
1932	1,895,000	49,471,000	3,796,000	D	1,597,000	116,541,000	530,000	D	126,000	2,631,000	16,414,000	836,000	44,000		62,000	1,309,677,000	60	1932
1933	1,663,000	54,392,000	4,490,000	D	1,620,000	117,720,000	562,000	D	122,000	2,338,000	13,158,000	917,000	112,000	31,000	71,000	1,442,112,000	63	1933
1934	1,546,000	57,851,000	5,140,000	D	1,637,000	136,103,000	557,000	D	178,000	2,881,000	17,341,000	7,689,000	159,000	285,000	96,000	1,522,243,000	59.7	1934
1935[1]	1,295,000	57,304,000	5,389,000	2,000	1,732,000	148,529,000	539,000	D	140,000	2,545,000	17,598,000	27,311,000	163,000	1,265,000	594,000	1,650,158,000	60.4	[1]1935
1936[1]	1,223,000	61,728,000	4,720,000	2,000	1,951,000	155,229,000	535,000	D	131,000	2,218,000	18,756,000	29,406,000	160,000	4,645,000	552,000	1,786,704,000	61.5	[1]1936
1937[1]	1,163,000	73,383,000	4,500,000	2,000	2,168,000	182,751,000	544,000	D	121,000	2,380,000	20,006,000	31,171,000	D	8,600,000	575,000	2,021,171,000	63.2	[1]1937
Total	31,968,000	788,034,000	77,956,000	149,000	17,940,000	1,491,320,000	9,734,000	20,000	2,197,000	22,149,000	205,863,000	100,988,000	719,000	14,826,000	2,731,000	31,149,582,012	64.1	Total

[B] Year ended September 30.
[F] Estimated.
[G] Beginning of production from Brunei.
[H] Less than one thousand barrels.

[1] For 1935, 1936 and 1937, figures for countries outside the United States are preliminary, having been estimated by THE OIL WEEKLY, with aid of government and other sources.

other countries a continuation of the rising trend. As compared with 478,544,000 barrels of production in those countries in 1929, the output rose to 513,894,000 barrels in 1930, to 522,575,000 barrels in 1931, and to 524,518,000 barrels in 1932.

Meanwhile, United States production had decreased from 1,007,323,000 barrels in 1929 to 898,000,000 barrels in 1930, to 851,081,000 barrels in 1931, and to 785,159,000 barrels in 1932.

In 1933 the countries outside the United States, as a whole, produced 2.3 percent more crude oil than in 1932, continuing the upward trend; and they subsequently showed increases of 14.5 percent in 1934, of 6.4 percent in 1935, of 4.9 percent in 1936, and of 8.5 percent in 1937.

United States Crude Oil Production, by States, by Years

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Pennsylvania	New York	Ohio	West Virginia	California	Kentucky	Tennessee	Colorado	Indiana	Illinois	Kansas	Texas	Missouri	YEAR
1859	2,000													1859
1860	500,000		B	B		B	C							1860
1861	2,113,609		B	B		B	C							1861
1862	3,056,690		B	B		B	C							1862
1863	2,611,309		B	B		B	C							1863
1864	A2,116,000	A109	B	B		B	C							1864
1865	A2,397,792	A99,908	B	B		B	C							1865
1866	A3,453,792	A143,908	B	B		B	C							1866
1867	A3,213,408	A133,892	B	B		B	C							1867
1868	A3,500,272	A145,845	B	B		B	C							1868
1869	A4,046,400	A168,600	B	B		B	C							1869
1870	A5,050,315	A210,430	B	B		B	C							1870
1871	A4,997,025	A208,209	B	B		B	C							1871
1872	A6,041,466	A251,728	B	B		B	C							1872
1873	A9,498,035	A395,751	B	B		B	C							1873
1874	A10,489,867	A437,078	B	B		B	C							1874
1875	A8,436,013	A351,501	B	B		B	C							1875
1876	A8,610,150	A358,756	31,763	120,000	12,000	B, D	D							1876
1877	A12,610,056	A525,419	29,888	172,000	13,000	B, D	D							1877
1878	A14,556,924	A606,538	36,179	180,000	15,227	B, D	D							1878
1879	A18,997,769	A787,407	29,112	180,000	19,858	B, D	D							1879
1880	A24,986,526	A1,041,105	38,940	179,000	40,552	B, D	D							1880
1881	A26,281,449	A1,095,060	33,867	151,800	99,862	B D	D							1881
1882	23,368,000	6,685,000	39,761	128,000	128,636	B, D	D							1882
1883	19,125,000	4,004,000	47,632	126,000	142,857	D4,755	D							1883
1884	20,541,000	3,231,000	90,081	90,000	262,000	D4,148	D							1884
1885	18,118,000	2,658,000	661,580	91,000	325,000	D5,164	D							1885
1886	23,647,000	2,151,000	1,782,970	102,000	377,145	D4,726	D							1886
1887	20,281,000	2,075,000	5,022,632	145,000	678,572	D4,791	D	76,295						1887
1888	14,700,000	1,789,000	10,010,868	119,448	690,333	D5,096	D	297,612						1888
1889	19,591,000	1,897,000	12,471,466	544,113	303,220	D5,400	D	316,476	33,375	1,460	500	48	20	1889
1890	26,800,000	1,658,000	16,124,656	492,578	307,360	D6,000	D	368,842	63,496	900	1,200	54	278	1890
1891	31,424,000	1,585,000	17,740,301	2,406,218	323,600	D9,000	D	665,482	136,634	675	1,400	54	25	1891
1892	27,149,000	1,273,000	16,362,921	3,810,086	385,049	D6,500	D	824,000	698,068	521	5,000	45	10	1892
1893	19,283,000	1,032,000	16,249,769	8,445,412	470,179	D3,000	D	594,390	2,335,293	400	18,000	59	50	1893
1894	18,078,000	942,000	16,792,154	8,577,624	705,969	D1,500	D	515,746	3,688,666	300	40,000	60	8	1894
1895	18,231,000	913,000	19,545,233	8,120,125	1,208,482	D1,500	D	438,232	4,386,132	200	44,430	50	10	1895
1896	19,379,000	1,205,000	23,941,169	10,019,770	1,252,777	D1,680	D	361,450	4,680,732	250	113,571	1,450	43	1896
1897	17,983,000	1,279,000	21,560,515	13,090,045	1,903,411	D322	D	384,934	4,122,356	500	81,098	65,975	19	1897
1898	14,743,000	1,205,000	18,738,708	13,615,101	2,257,207	D5,568	D	444,383	3,730,907	360	71,980	546,070	10	1898
1899	13,054,000	1,321,000	21,142,108	13,910,630	2,642,095	D18,280	D	390,278	3,848,182	360	69,700	669,013	132	1899
1900	13,358,202	1,300,925	22,362,730	16,195,675	4,324,484	D62,259	D	317,385	4,874,392	200	74,714	836,039	E1,602	1900
1901	12,625,378	1,206,618	21,648,083	14,177,126	8,786,330	D137,259	D	460,520	5,757,086	250	179,151	4,393,658	E2,335	1901
1902	12,063,880	1,119,730	21,014,231	13,513,345	13,984,268	D185,331	D	396,901	7,480,896	200	331,749	18,083,658	E757	1902
1903	11,355,156	1,162,978	20,480,286	12,899,395	24,382,472	D354,286	D	483,925	9,186,411		932,214	17,955,572	E3,000	1903
1904	11,125,762	1,113,264	18,876,631	12,644,686	29,649,434	D998,284	D	501,763	11,339,124		4,250,779	22,241,413	E2,572	1904
1905	10,437,195	1,117,582	16,346,660	11,578,110	33,427,473	D1,217,337	D	376,238	10,964,247	181,084	E3,750,000	28,136,189	E3,100	1905
1906	10,256,893	1,243,517	14,787,763	10,120,935	33,098,598	D1,213,548	D	327,582	7,673,477	4,397,050	E3,627,000	12,567,897	E3,500	1906
1907	9,999,306	1,212,300	12,207,448	9,095,296	39,748,375	D820,844	D	331,851	5,128,037	24,281,973	2,409,521	12,322,696	E4,000	1907
1908	9,424,325	1,160,128	10,858,797	9,523,176	44,854,737	727,767		379,653	3,283,629	33,686,238	1,801,781	11,206,464	E15,246	1908
1909	9,299,403	1,134,897	10,632,793	10,745,092	55,471,601	639,016		310,861	2,296,086	30,898,339	1,263,764	9,534,467	E5,750	1909
1910	8,794,662	1,053,838	9,916,370	11,753,071	73,010,560	468,774		239,794	2,159,725	33,143,362	1,128,668	8,899,266	E3,615	1910
1911	8,248,158	952,515	8,817,112	9,795,464	81,134,391	472,458		226,926	1,695,289	31,317,038	1,278,819	9,526,474	E7,995	1911
1912	7,837,948	874,128	8,969,007	12,128,962	87,269,000	484,368		206,052	970,009	28,601,308	1,592,796	11,735,057		1912
1913	7,917,302	948,191	8,781,468	11,567,299	97,788,525	524,568		188,799	956,095	23,893,899	2,375,029	15,009,478	F	1913
1914	8,170,335	938,974	8,536,352	9,680,033	99,775,327	502,441		222,773	1,335,456	21,919,749	3,103,585	20,068,184	F	1914
1915	7,838,705	887,778	7,825,326	9,264,798	86,591,535	437,274		208,475	875,758	19,041,695	2,823,487	24,942,701	F	1915
1916	7,592,394	874,087	7,744,511	8,731,184	90,951,936	J1,202,560	J677	197,235	769,036	17,714,235	3,738,077	27,644,605	F	1916
1917	7,733,200	879,685	7,750,540	8,379,285	93,877,549	J3,088,160	J12,196	121,231	759,432	15,776,860	36,536,125	32,413,287		1917
1918	7,407,812	808,843	7,285,005	7,866,628	97,531,997	J4,367,968	J8,374	143,286	877,558	13,365,974	45,451,017	38,750,031		1918
1919	8,137,000	851,000	7,736,000	8,327,000	101,183,000	9,278,000	15,000	121,000	972,000	11,960,000	33,048,000	79,366,000	F	1919
1920	7,438,000	906,000	7,400,000	8,249,000	103,377,000	8,738,000	14,000	111,000	945,000	10,774,000	39,005,000	96,868,000		1920
1921	7,418,000	988,000	7,335,000	7,822,000	112,600,000	9,013,000	12,000	108,000	1,158,000	10,043,000	36,456,000	106,166,000	F	1921
1922	7,425,000	1,000,000	6,781,000	7,021,000	138,468,000	8,973,000	10,000	97,000	1,087,000	9,383,000	31,766,000	118,684,000	F	1922
1923	7,609,000	1,250,000	7,085,000	6,358,000	262,876,000	8,069,000	8,000	86,000	1,043,000	8,707,000	28,250,000	131,023,000	F	1923
1924	7,486,000	1,440,000	6,811,000	5,920,000	228,933,000	7,407,000	10,000	445,000	935,000	8,081,000	28,836,000	134,522,000		1924
1925	8,097,000	1,695,000	7,212,000	5,763,000	232,492,000	6,759,000	24,000	1,226,000	829,000	7,863,000	38,357,000	144,648,000		1925
1926	8,961,000	1,956,000	7,272,000	5,946,000	224,673,000	6,274,000	43,000	2,768,000	808,000	7,760,000	41,498,000	166,916,000		1926
1927	9,526,000	2,242,000	7,593,000	6,023,000	231,196,000	6,719,000	60,000	2,831,000	852,000	6,994,000	41,069,000	217,389,000		1927
1928	9,956,000	2,603,000	7,015,000	5,661,000	231,811,000	7,359,000	46,000	2,774,000	1,052,000	6,462,000	38,596,000	257,320,000		1928
1929	11,820,000	3,377,000	6,743,000	5,574,000	292,534,000	7,775,000	19,000	2,358,000	981,000	6,319,000	42,813,000	296,876,000		1929
1930	12,803,000	3,647,000	6,486,000	5,071,000	227,329,000	7,389,000	21,000	1,656,000	994,000	5,736,000	41,638,000	290,457,000		1930
1931	11,892,000	3,363,000	5,327,000	4,472,000	188,830,000	6,456,000	6,000	1,545,000	840,000	5,039,000	37,018,000	332,437,000		1931
1932	12,412,000	3,508,000	4,644,000	3,876,000	178,128,000	6,287,000	5,000	1,136,000	806,000	4,673,000	34,848,000	312,478,000	F	1932
1933	12,624,000	3,181,000	4,235,000	3,815,000	172,010,000	4,608,000	5,000	919,000	737,000	4,244,000	41,976,000	402,609,000	F	1933
1934	14,478,000	3,804,000	4,234,000	4,095,000	174,305,000	4,860,000	10,000	1,139,000	838,000	4,479,000	46,482,000	381,516,000	F	1934
1935	15,810,000	4,236,000	4,082,000	3,902,000	207,832,000	5,258,000	F	1,560,000	777,000	4,322,000	54,843,000	392,666,000	F	1935
1936M	17,070,000	4,663,000	3,847,000	3,847,000	214,773,000	5,633,000	F	1,650,000	822,000	4,475,000	58,317,000	427,411,000	F	M1936
1937N	19,123,000	5,468,000	3,546,000	3,837,000	238,585,000	5,483,000	F	1,477,000	819,000	7,331,000	70,835,000	510,712,000	F	N1937
Total	934,432,883	114,032,222	578,749,386	400,053,710	4,872,157,983	150,529,941	329,247	35,326,370	123,400,584	432,870,380	907,746,155	5,127,614,005	54,077	Total

GENERAL FOOTNOTE: In addition to the figures shown above, *Mineral Resources* gives the following information: Tennessee and Kentucky had small showings of oil shortly after the discovery of oil in the Pennsylvania district in 1859 and in the years 1886-1889; Texas in 1886, 1888 and 1889, and Indiana in 1888 and 1889. No record of the amount of production during these years is available.

A Pennsylvania and New York separated in years 1864-1881 by aid of *Arnold and Kemnitzer* and *Mineral Resources*.

B *Arnold and Kemnitzer* give the following additional estimates which are not shown by the official *Mineral Resources:* Ohio, 1860-1875, 200,000 barrels; West Virginia, 1860-1875, 2,800,000 barrels; Kentucky, 1860-1882, 161,000 barrels.

C Little production but no record available.

D Small production in Tennessee included with Kentucky.

E In 1900-1911 Michigan shown with Missouri.

F Included with unclassified.

In the five years from 1932 to 1937, production outside the United States increased 42 percent.

In the post-depression period, the United States has shown even more pronounced gains in production. From the depression trough of 785,159,000 barrels in 1932, the country's production has increased usually from 10 to 15 percent a year; increases having amounted to 15.3 percent in 1933, to 0.3 percent in 1934, to 9.7 percent in 1935, to 10.3 percent in 1936, and to 16.1 percent in 1937. The 1937 output was 63 percent larger than that of 1932.

For the world as a whole, as pointed out previously, the 1937 production was 54 percent larger than that of 1932, increases of 5 to

[*See Production page 143*]

United States Crude Oil Production, by States, by Years—(Continued)

Complete Production History of the Nation in Barrels of 42 U. S. Gallons

(Sources.—*Mineral Resources* and *Minerals Yearbook*, except where otherwise indicated in footnotes. Note: the detailed figures for 1918 and earlier years are from *Mineral Resources* for those years, rather than from later reports, which are in thousands of barrels.)

YEAR	Oklahoma	Wyoming	Louisiana	Montana	Arkansas	New Mexico	Michigan	Mississipoi	[K]Utah	[L]Alaska	Unclassified	Total United States	Total Value At Wells	[I]Average Value Per Bbl.	YEAR
1859												2,000	$ 32,000	$20.00	1859
1860												500,000	4,800,000	9.60	1860
1861												2,113,609	1,035,668	0.52	1861
1862												3,056,690	3,209,525	1.05	1862
1863												2,611,309	8,225,663	3.15	1863
1864												2,116,109	20,896,576	8.15	1864
1865												2,497,700	16,459,853	6.59	1865
1866												3,597,700	13,455,398	3.73	1866
1867												3,347,300	8,066,993	2.40	1867
1868												3,646,117	13,217,174	3.62	1868
1869												4,215,000	23,730,450	5.60	1869
1870												5,260,745	20,503,754	3.90	1870
1871												5,205,234	22,591,180	4.40	1871
1872												6,293,194	21,440,503	3.75	1872
1873												9,893,786	18,100,464	1.80	1873
1874												10,926,945	12,647,527	1.15	1874
1875												8,787,514	7,368,133	0.97	1875
1876												9,132,669	22,982,822	2.52	1876
1877												13,350,363	31,788,566	2.38	1877
1878												15,394,868	18,044,520	1.17	1878
1879												19,914,146	17,210,708	0.86	1879
1880												26,286,123	24,600,638	0.94	1880
1881												27,661,238	25,448,339	0.92	1881
1882												30,349,397	23,631,165	0.78	1882
1883												23,450,244	25,790,252	1.10	1883
1884												24,218,229	20,595,966	0.85	1884
1885												21,858,744	19,198,243	0.88	1885
1886												28,064,841	19,996,313	0.71	1886
1887												28,283,290	18,877,094	0.67	1887
1888												27,612,357	17,947,620	0.65	1888
1889												35,164,078	26,963,340	0.77	1889
1890												45,823,364	35,365,105	0.77	1890
1891	30											54,292,419	30,526,553	0.56	1891
1892	80											50,514,280	25,906,463	0.51	1892
1893	10											48,431,553	28,950,326	0.60	1893
1894	130	2,369										49,344,526	35,522,095	0.72	1894
1895	37	3,455										52,891,886	57,632,296	1.09	1895
1896	170	2,878										60,959,940	58,518,709	0.96	1896
1897	625	3,650										60,475,450	40,874,072	0.69	1897
1898		5,475										55,363,769	44,193,359	0.80	1898
1899		5,560										57,071,338	64,603,904	1.13	1899
1900	8,472	5,450					E					63,620,529	75,989,313	1.19	1900
1901	10,000	5,400					E					69,389,194	66,417,335	0.96	1901
1902	37,100	6,253	548,617				E					88,766,916	71,178,910	0.80	1902
1903	138,911	8,960	917,771				E					100,461,337	94,694,050	0.94	1903
1904	1,366,748	11,542	2,958,958				E			C		117,080,960	101,175,455	0.86	1904
1905	[H]9,264,000	8,454	8,910,416				E					134,718,085	84,157,399	0.62	1905
1906	[H]18,091,000	7,000	9,077,528				E					126,493,288	92,444,735	0.73	1906
1907	43,524,128	[G]9,339	5,000,221				F		G	C		166,095,335	120,106,749	0.72	1907
1908	45,798,765	[G]17,775	5,788,874				E		G			178,527,355	129,079,184	0.72	1908
1909	47,859,218	[G]20,056	3,059,531				E		G			183,170,874	128,328,487	0.70	1909
1910	52,028,718	[G]115,430	6,841,395				E		G			209,557,248	127,899,688	0.61	1910
1911	56,069,637	[G]186,695	10,720,420				E		G	C		220,449,391	134,044,752	0.61	1911
1912	51,427,071	[G]1,572,306	9,263,439				K		G	F	4,000	222,935,451	164,213,247	0.74	1912
1913	63,579,384	2,406,522	12,498,828				K		C	F	11,000	248,446,387	237,121,388	0.95	1913
1914	73,631,724	3,560,375	14,309,435				K		C	F	8,000	265,762,743	214,125,215	0.81	1914
1915	97,915,243	4,245,525	18,191,539				K		C	F	14,000	281,103,839	179,462,890	0.64	1915
1916	107,071,715	6,234,137	15,248,138	44,917			K		C	F	8,000	300,767,453	330,899,868	1.10	1916
1917	107,507,471	8,978,680	11,392,201	99,399			K		C	F	10,300	335,315,601	522,635,213	1.56	1917
1918	103,347,070	12,596,287	16,042,600	69,323			K		C	F	7,943	355,927,716	703,543,961	1.98	1918
1919	86,911,000	13,172,000	17,188,000	90,000		F	K		C	F	12,000	378,367,000	760,266,000	2.01	1919
1920	106,206,000	16,831,000	35,714,000	340,000	F	F			F	F	13,000	442,929,000	1,360,745,000	3.07	1920
1921	114,634,000	19,333,000	27,103,000	1,509,000	10,473,000	F				F	12,000	472,183,000	814,745,000	1.73	1921
1922	149,571,000	26,715,000	35,376,000	2,449,000	12,712,000	F				F	13,000	557,531,000	895,111,000	1.61	1922
1923	160,929,000	44,785,000	24,919,000	2,782,000	36,610,000	F				F	18,000	732,407,000	978,430,000	1.34	1923
1924	173,538,000	39,498,000	21,124,000	2,815,000	46,028,000	98,000			F	F	13,000	713,940,000	1,022,683,000	1.43	1924
1925	176,768,000	29,173,000	20,272,000	4,091,000	77,398,000	1,060,000	4,000		F	F	12,000	763,743,000	1,284,960,000	1.68	1925
1926	179,195,000	25,776,000	23,201,000	7,727,000	58,332,000	1,666,000	94,000		F	F	8,000	770,874,000	1,447,760,000	1.88	1926
1927	277,775,000	21,307,000	22,818,000	5,058,000	40,005,000	1,226,000	450,000		F	F	7,000	901,129,000	1,172,830,000	1.30	1927
1928	249,857,000	21,461,000	21,847,000	4,015,000	32,096,000	943,000	594,000		F	F	6,000	901,474,000	1,054,880,000	1.17	1928
1929	255,004,000	19,314,000	20,554,000	3,980,000	24,917,000	1,530,000	4,528,000		F	F	7,000	1,007,323,000	1,280,417,000	1.27	1929
1930	216,486,000	17,868,000	23,272,000	3,349,000	19,702,000	10,189,000	3,911,000		F	F	7,000	898,011,000	1,070,200,000	1.19	1930
1931	180,574,000	14,834,000	21,804,000	2,830,000	14,791,000	15,227,000	3,789,000		F	F	7,000	851,081,000	550,630,000	0.65	1931
1932	153,244,000	13,418,000	21,807,000	2,457,000	12,051,000	12,455,000	6,910,000		F	F	16,000	785,159,000	680,460,000	0.87	1932
1933	182,251,000	11,227,000	25,168,000	2,273,000	11,686,000	14,116,000	7,942,000		F	F	30,000	905,656,000	608,000,000	0.67	1933
1934	180,107,000	12,556,000	32,869,000	3,603,000	11,182,000	16,864,000	10,603,000		F	F	41,000	908,065,000	904,825,000	1.00	1934
1935	185,288,000	13,755,000	50,330,000	4,603,000	11,008,000	20,483,000	15,776,000	F	F	F	65,000	996,596,000	961,440,000	.965	1935
1936[M]	206,555,000	14,582,000	80,491,000	5,868,000	10,469,000	27,223,000	11,928,000	F	F	F	63,000	1,099,687,000	1,199,820,000	1.09	[M]1936
1937[N]	228,712,000	18,644,000	90,598,000	5,754,000	11,688,000	38,755,000	15,937,000	F	F	F	60,000	1,277,364,000	1,494,515,000	1.17	[N]1937
Total	4,341,280,457	434,268,573	767,224,911	65,806,639	441,148,000	162,135,000	82,455,000	F	F	F	473,243	19,972,088,766	24,071,584,168	1.20	Total

[G] Insignificant production of Utah (mostly used as fuel) shown with Wyoming.

[H] Figures for Oklahoma and Kansas for years 1905-1906 shown together by *Mineral Resources;* here divided by aid of *Arnold and Kemnitzer.*

[I] Figures on average price per barrel for years 1859-1875 taken from *Arnold and Kemnitzer;* remainder from *Mineral Resources.*

[J] Kentucky and Tennessee figures in years 1916-1918 obtained with aid of *Arnold and Kemnitzer* and *Mineral Resources.*

[K] *Arnold and Kemnitzer* show for Utah the following data: 1907-1923, estimated 37,000 barrels; 1924, 3,000 barrels; 1925, 4,000 barrels; 1926, 525 barrels; 1927, 2,500 barrels; 1929, estimated, 3,500 barrels; total, 1907-1929, 50,525 barrels.

[L] *Arnold and Kemnitzer* show for Alaska the following data: 1904-1919, estimated, 56,000 barrels; 1920, 11,000 barrels; 1921, 10,000 barrels; 1922-1928, estimated, 73,000 barrels; total, 1904-1928, 150,000 barrels.

[M] From Bureau of Mines final summary on petroleum for 1936.

[N] Bureau of Mines figures for first 11 months; December estimated by THE OIL WEEKLY, with aid of weekly reports of American Petroleum Institute.

U. S. Reserves

Consistent trend of finding more oil than produced, carries proven reserves to peak, and indicates nation not facing a scarcity

By WARREN L. BAKER
Editor

CONTRARY to recent manifestations of apprehension lest crude oil resources of the United States soon are to be exhausted, it appears that the nation will be able to supply consumptive demands for many more years, despite anticipated future growth in the already huge quantity being consumed annually.

In recent years proven crude reserves capable of being produced over a period of years by currently-used methods, but which have not been extracted from the earth, are increasing considerably faster than the record level attained by production. At this time the volume of known producible reserves are the highest in history, being estimated as totaling 14,363,000,000 barrels on January 1, 1938, or nearly 70 percent of the amount produced in the 78 years since the drilling of the first oil well. This figure represents a gain of 1,300,000,000 barrels the past year which was the result of the discovery of nearly 2 billion barrels, and revision of 1937 estimates upward slightly over 600 million due to field expansions, etc. This is one of the greatest volumes discovered in a single year, although not equalling the total of 1930, when the East Texas field, the world's largest, was found.

Moreover, the number of fields being found is increasing. During 1937, an all-time peak was attained when 357 new fields and new producing sands in old fields were opened, of which 221 represented new structures. In addition, there were numerous extensions of producing areas in many fields. The belief that this trend indicates many more fields are to be discovered in the future is strengthened

TABLE 1
Proven Petroleum Reserves of the United States at All-Time Peak

	January 1, 1925	Percent	January 1, 1935	Percent	January 1, 1937	Percent	January 1, 1938	Percent
West Coast:								
California	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	2,995,000,000	20.8
	2,140,000,000	40.2	3,500,000,000	28.7	2,956,000,000	22.6	2,995,000,000	20.8
Rocky Mountain States:								
Wyoming	296,000,000	5.6	250,000,000	2.1	239,000,000	1.9	265,000,000	1.8
Montana	10,000,000	0.2	60,000,000	0.5	92,000,000	0.7	85,000,000	0.6
Colorado	49,000,000	0.9	12,000,000	0.1	15,000,000	0.1	95,000,000	0.7
	355,000,000	6.7	322,000,000	2.7	346,000,000	2.7	445,000,000	3.1
North Mid-Continent:								
Kansas	315,000,000	5.9	400,000,000	3.3	568,000,000	4.3	575,000,000	4.0
Oklahoma	1,040,000,000	19.6	1,200,000,000	9.8	1,141,000,000	8.8	965,000,000	6.7
	1,355,000,000	25.5	1,600,000,000	13.1	1,709,000,000	13.1	1,540,000,000	10.7
Southwestern States:								
Arkansas	122,000,000	2.3	75,000,000	0.6	84,000,000	0.6	200,000,000	1.4
Louisiana	134,000,000	2.5	375,000,000	3.1	524,000,000	4.0	750,000,000	5.2
Texas	732,000,000	13.8	5,500,000,000	45.2	6,422,000,000	49.2	7,225,000,000	50.3
New Mexico	13,000,000	0.2	350,000,000	2.8	471,000,000	3.6	525,000,000	3.7
	1,001,000,000	18.8	6,300,000,000	51.7	7,501,000,000	57.4	8,700,000,000	60.6
Midwest and Eastern States:								
Illinois	112,000,000	2.1	35,000,000	0.3	28,000,000	0.2	150,000,000	1.0
Indiana	11,000,000	0.2	5,000,000	0.0	3,000,000	0.0	2,500,000	0.0
Kentucky	79,000,000	1.5	35,000,000	0.3	39,000,000	0.3	40,000,000	0.3
Michigan	.....	.....	45,000,000	0.4	44,000,000	0.3	60,000,000	0.4
New York	16,000,000	0.3	40,000,000	0.3	66,000,000	0.5	65,000,000	0.5
Ohio	120,000,000	2.2	30,000,000	0.3	32,000,000	0.3	31,500,000	0.2
Pennsylvania	86,000,000	1.6	240,000,000	2.0	307,000,000	2.3	300,000,000	2.1
West Virginia	48,000,000	0.9	25,000,000	0.2	32,000,000	0.3	34,000,000	0.3
	472,000,000	8.8	455,000,000	3.8	551,000,000	4.2	683,000,000	4.8
Total United States	5,323,000,000	100.0	12,177,000,000	100.0	13,063,000,000	100.0	14,363,000,000	100.0

Note: Figures for 1925, 1935 and 1937 from the American Petroleum Institute.

by the vast amount of territory considered favorable for production, but which as yet is not producing.

However discovery rates the past year are not the only trends that indicate the United States is not nearing the end of its petroleum road. When considered over a longer period they are just as impressive. During the last 12 years 51 percent of all the oil discovered in the nation has been found. During successive 10-year periods, the rate of oil find has been upward at a constant pace. This has resulted in known unproduced crude reserves increasing 170 percent the last 13 years, despite the huge amount that has been produced and consumed during that time.

Besides these and other detectable trends in discovery rates, there are other considerations that also point to a continuation of the United States' ability to produce large quantitites of crude oil. Deeper drilling, just coming into its own, promises to open a new crude discovery era for the United States. Many areas heretofore not productive are proving oil-bearing in deeper horizons, and many old fields are being found to yield production in deeper lying formations. Moreover, it is to be anticipated that there will be continued improvement in producing and refining methods. These may add more than 20 percent to the volume recovered from the average field, and as much as 50 percent to the value of the commodities derived from each barrel of oil.

Known Reserves Increasing

The trend of known crude reserves is the first consideration in attempting to appraise the United States' future as an oil producing country. If reserves are increasing, the industry is keeping ahead of consumption; but if they are declining, the industry is failing to meet demand, and there is need to fear a shortage of petroleum products.

The trend of known crude reserves, shown in Table 1, is showing a consistent upward curve and no signs of commencing to slacken its pace. The fact that they are at the highest point in history today, probably is not as important as that they have increased 9,040,000,000 barrels, or 170 percent, since 1925. The latter certainly is reassuring, but even more impressive is the 2,186,000,000 barrel gain since 1935, and the 1,300,000,000 barrel increase in the last 12 months. The latter illustrates that at this very time the United States is finding more new oil than it is producing, and this in the face of the highest consumption and production in history. The present volume of known producible crude reserves is 72 percent as great as the total produced in the 78 years since the oil industry started. However, it must be admitted that more than the slightly less than 20 billion barrels produced in the past will be needed during the next 78 years; for consumption last year reached 1¼ billion barrels and will show additional growth in coming years. But the huge quantity that has been discovered but not produced does represent a sizeable back-log although it must through physical necessity be produced over a long period of years.

How well the United States has been able to keep its reserves in line with production is shown graphically in Figure 1. It will be noted that crude reserves have ably kept abreast of production at all times, and that in more recent years have shown a somewhat larger growth than production, although the latter has reached new all-time peaks.

When that time arrives that the United States is to shortly experience a shortage of petroleum resources, new supplies will become increasingly harder to find at gradual rates. That this time has not yet arrived is demonstrated by the foregoing mentioned growth in known crude reserves in recent years.

Discovery Rates Higher

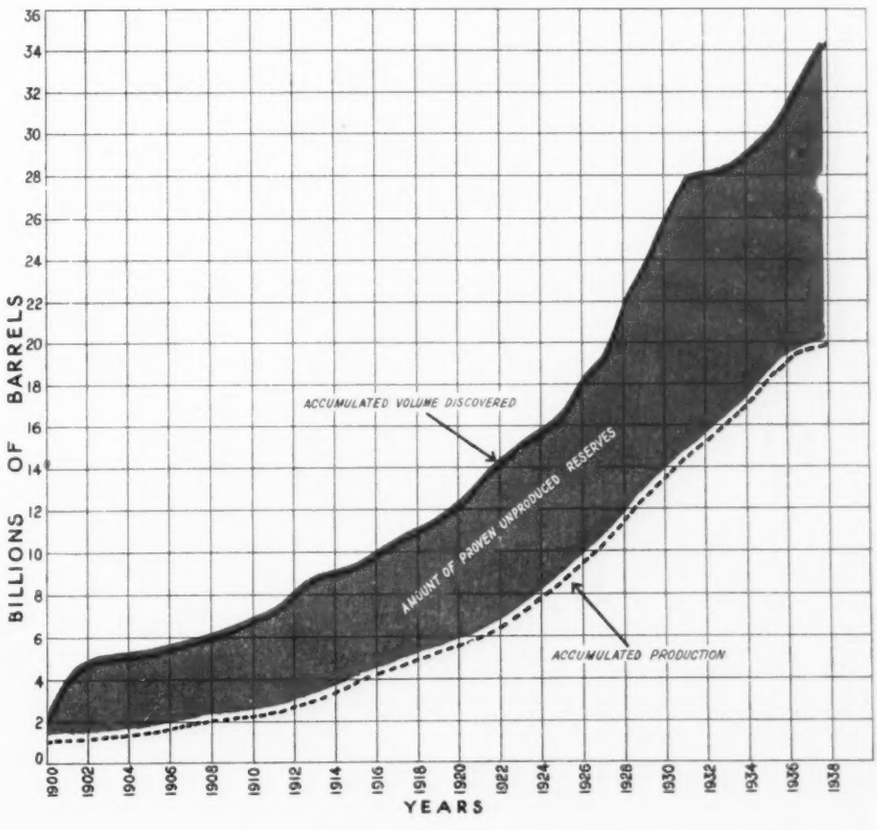
Several arresting features regarding oil finding rates are well illustrated in Table 2, which show the rates and discoveries and number of wells drilled by periods since 1859 in the United States.

This table shows that of the 34-1/3 billion barrels discovered since the start of the industry, that 85.5 percent has been found in the last 32 years. In other words, 29-1/3 billion barrels of the 34-1/3 billion barrels found in the United States were discovered in the last half of the industry's life.

Moreover, over 50 percent or nearly 17½ billion barrels of all the oil found to date has been discovered in the last 12 years.

Inclusion of the figures for 1936 and 1937 shows that the next ten-year period may keep abreast of the record represented by the era 1926-1935, and the latter must be

FIGURE 1
United States crude reserves are increasing faster than production.



considered as coming close to perfection. Included in these years is the East Texas field, the world's largest discovery, which may produce 4 billion barrels during its lifetime. If the next eight years are as good as the last two, the ten year period that will be presented by the years 1936-1945 will exceed the amount found from 1926 to 1935. For during the year 1936 and 1937, nearly 3-3/4 billion barrels or 10.9 percent of the cumulative total discovered in the United States, were found.

In addition to the foregoing facts, that set forth the amazing upward trend of oil discoveries, Table 2 also shows the industry is becoming more efficient, in that the number of wells drilled have not increased in proportion to the volume of barrels discovered. The number of barrels found per well drilled, including all completions, have risen rapidly.

The number of barrels found per well drilled, including all completions, has increased steadily. There was a fairly steady growth until the end of the 1916-1925 era. The great volume added by East Texas caused a sharp growth in barrels discovered per well drilled in the following 10 years. Of great importance, however, is that 1936 and 1937 have been slightly more efficient than was the 1926-1945 period. An average of 70,372 barrels have been found by the wells drilled in 1936-1937, which compares with 69,459 in the preceding 10 years.

TABLE 2

United States' Rates of Discovery Increasing

PERIOD	OIL DISCOVERED		WELLS DRILLED		Barrels Found per Well
	Barrels	Percent	Number	Percent	
1859–1895	1,750,000,000	5.1	102,366	10.9	17,096
1896–1905	3,225,000,000	9.4	146,627	15.5	21,993
1906–1915	4,100,000,000	11.9	182,937	19.5	22,412
1916–1925	7,775,000,000	22.6	255,372	27.2	30,447
1926–1935	13,750,000,000	40.1	197,962	21.1	69,459
1936–1937	3,730,000,000	10.9	52,933	5.7	70,372
Total	34,330,000,000	100.0	938,197	100.0	36,586

Can Pace Be Maintained?

Foregoing discussions of known crude reserve and discovery rate trends indicate there is no immediate danger of an oil shortage in the United States. Therefore, how long the industry will be able to maintain this pace becomes the important question. This cannot be answered with any degree of accuracy. However, several conditions made it appear likely that it will be able to supply the needed quantity for many years.

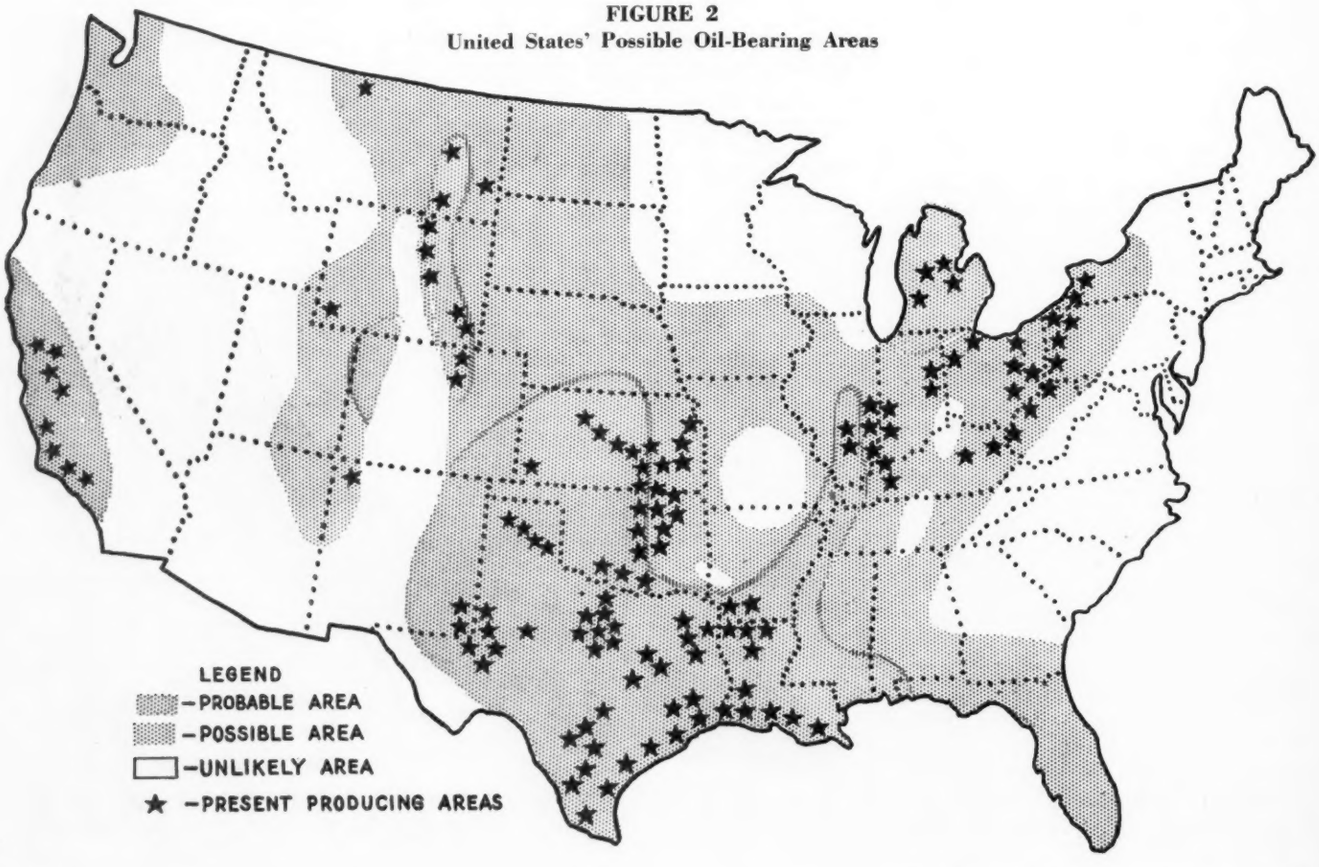
Undoubtedly there exist large reserves of crude petroleum in the United States that have not been discovered as yet, but which may be found in coming years.

The extent of present oil producing or proven areas is comparatively small, whereas, the extent of explored regions considered favorable for oil is extremely large. It has been estimated by the American Petroleum Institute that the total area in the United States in which the discovery of oil fields is possible is 1,100,000,000 acres, or about 57 percent of the total surface of the nation. It is surprising that at present but approximately 10,000,000 acres have been proved productive in the United States, or only a small fraction of the acres believed favorable.

Besides the American Petroleum

FIGURE 2

United States' Possible Oil-Bearing Areas



Institute a number of other authoritative sources have gone into detail as to the United States' future oil possibilities. The accompanying map, Figure 2, graphically presents a concensus of a number of such works. It will be noted that a number of states not now producing oil are regarded as possible oil bearing territories. These are underlaid with rocks of the same general characteristics as those which yield production today. However, it will be further noted that the districts considered most favorable are those yielding the bulk of present day production.

A number of developments the past year indicate the remarkable possibilities of finding oil in regions believed less favorable. Outstanding was the discovery of eight new fields in Illinois after the state had been considered a "has been" area for 30 years. As a result the state has more crude reserves today than it had 13 years ago. In 1925, Illinois was credited with having 112,000,000 barrels of reserves. This declined to 28,000,000 barrels in 1937. But the first of 1938 finds it given a reserve of 150,000,000 barrels.

There were other instances of comebacks last year. Arkansas, which had been experiencing the some downward trend as Illinois, rebounded into the crude reserve picture. It is calculated new discoveries in 1937 raised the state's future known producible supply to 200,000,000 barrels whereas, a year previously it had but 84,000,000 barrels. California, which had been slipping also, found new fields and checked its decline. Back to life also, came the Rocky Mountain district, lead by Colorado.

However, the Southwestern States contain by far the largest portion of the known United States reserve. Arkansas, Louisiana, Texas and New Mexico are credited with 60.6 percent of the total. This territory has come to the front rapidly, having held only 18.8 percent in 1925.

While speaking of the Southwest, it might be more proper to speak of Texas alone. This state in 1925 had 13.8 percent of the nation's reserves. By 1935 it had 45.2 percent of the reserves, and the first of this year was credited with holding 50 percent.

The states holding the largest percent of reserves are the immediate production leaders. Likewise, they are most the favorable grounds for hunting new fields. For example, half of the discoveries made in the United States last year were in Texas. Elsewhere in this issue is presented a table showing United States discoveries in 1937.

TABLE 3

East Texas Largest Texas Reserve

AREA	Barrels
Coast	2,050,000,000*
South	875,000,000*
West	1,075,000,000
Panhandle	225,000,000
East	2,625,000,000
North	400,000,000
Total	7,225,000,000

* South Gulf Coast (Corpus Christi area) included in South Texas total.

Deep Drilling Important

No discussion of the possibilities of discovering additional oil fields would be complete unless much stress was placed upon deeper production horizons in both old and new pools. Without a doubt deeper drilling offers great possibilities for additional supplies. A new era in petroleum discoveries is the likely outcome of the widespread trend toward deeper drilling now just reaching its full stride. Many areas carry production at deeper depths than whence they are producing today, and in some localities the drill has not reached the uppermost productive horizon as yet. Unfortunately, there is no known means of even hazarding a guess as to how prolific this development will be. However, the discovery of 136 new sands in old fields last year, was with only a few exceptions at deeper levels than previous producing zones. Moreover, many of the new fields found in 1937 would not have been discovered if wells had been stopped at normal depths. Outstanding, in this respect is the discovery of production at 11,300 feet at Rio Bravo, California; at 10,000 feet at Old Ocean Texas, and several others.

Mechanical Advancements Help

By no means is all the oil found in a field brought to the surface for consumption; however, engineers are increasing the percent recovered constantly, and it is to be anticipated that this trend will continue. Therefore, the United States has a large supply of oil already discovered, and may reasonably be expected to produce at least a large part of this quantity in the future. This constitutes still another means of increasing the country's future supply, as this volume is not considered in calculating present known reserves, which includes only that portion now producible.

It has been variously estimated that but 30 to 60 percent of the oil in the average field is actually produced. If the conservative figure of 50 percent recovery is taken, there apparently will remain over 30 billion barrels of oil in known fields after they have been depleted by present operating methods. Progress recently made by the industry's scientists indicate that much of this estimated volume may be produced ultimately.

In Pennsylvania, we find a good example of improved producing efficiency in the past. Although no new major producing fields have been discovered in the state for many years, it is credited with a greater crude reserve today than 13 years ago. In 1925, it was estimated the state had a reserve of 86,000,000 barrels, whereas today it has 300,000,000 barrels. Practically all this increase has been due to advancement in producing technique, particularly water flooding.

In addition to likely advancement in producing ability, the refining industry enters the picture at this point. The proportionate recovery of motor fuel from a barrel of crude oil today is nearly 50 percent, whereas in 1926 it was only 33 percent, and as recently as 1914 was but 16 percent. It can be seen that each barrel of oil produced today yields more marketable products than a few years ago. Laboratory experiments have demonstrated the possibility of recovering nearly 100 percent of all oil that reaches the refinery, and these methods may shortly be placed in practical operation.

Conclusions Favorable

There will be no sudden cessation in the discovery of new crude oil supplies, as they will become gradually more difficult to find as exhaustion nears. Therefore, with the present trend of discovery rates being sufficiently great to consistently increase the volume of crude reserves despite all-time peaks in production; with the exceptionally large number of new fields being found annually; with a vast area in which producing structures yet may be found; with deeper drilling offering practically unlimited possibilities; plus anticipated mechanical improvements—it would seem the United States need not fear any immediate inability to produce enough petroleum to meet consumption demands.

Drilling Gain

By L. L. LOGAN
Associate Editor

ALTHOUGH it is difficult to see very far into the future of the oil industry in the present time of unsettled business conditions, current circumstances indicate that drilling will show a further slight increase in 1938, after having expanded in 1937 almost to the all-time record proportions of 1920.

As they did a year ago with considerable accuracy, the members of the editorial staff of this publication have collaborated in making an annual forecast of drilling in the United States. And a tabulation of the estimates for the various states and districts has indicated expectations of the drilling of 7.2 percent more wells in 1938 than in 1937, for the country as a whole.

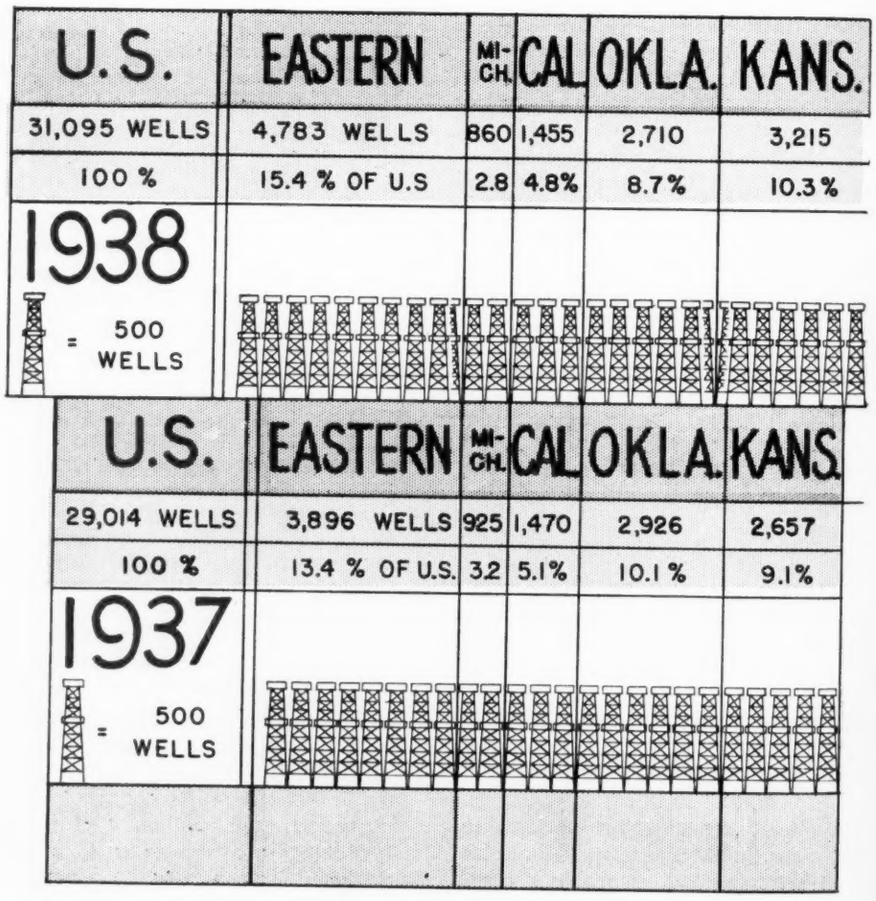
Most of the oil producing states and districts are expected to experience increases in drilling, although some face the probability of less activity, as indicated in detail in the accompanying charts and tables.

Based on Known Factors

The forecasts have been based, necessarily, on known circumstances and probabilities, as well as past developments; and consequently, they may be expected to be fulfilled only in the absence of any important developments that are at present unforeseen.

Basically, therefore, the forecasts are predicated on expectations of relatively good general business conditions and a continuation of comparatively favorable markets and crude oil prices in the oil industry. And the forecasts possibly would prove inaccurate to a considerable extent in the event of an unexpected deterioration or improvement of economic conditions.

If the current business recession should develop into a serious depression, or if the oil markets and prices should decline sharply, for some presently unforeseen reason, then the drilling estimates obviously might prove too high. And similarly, if general business and the oil industry should unexpectedly experience a vigorous revival, be-



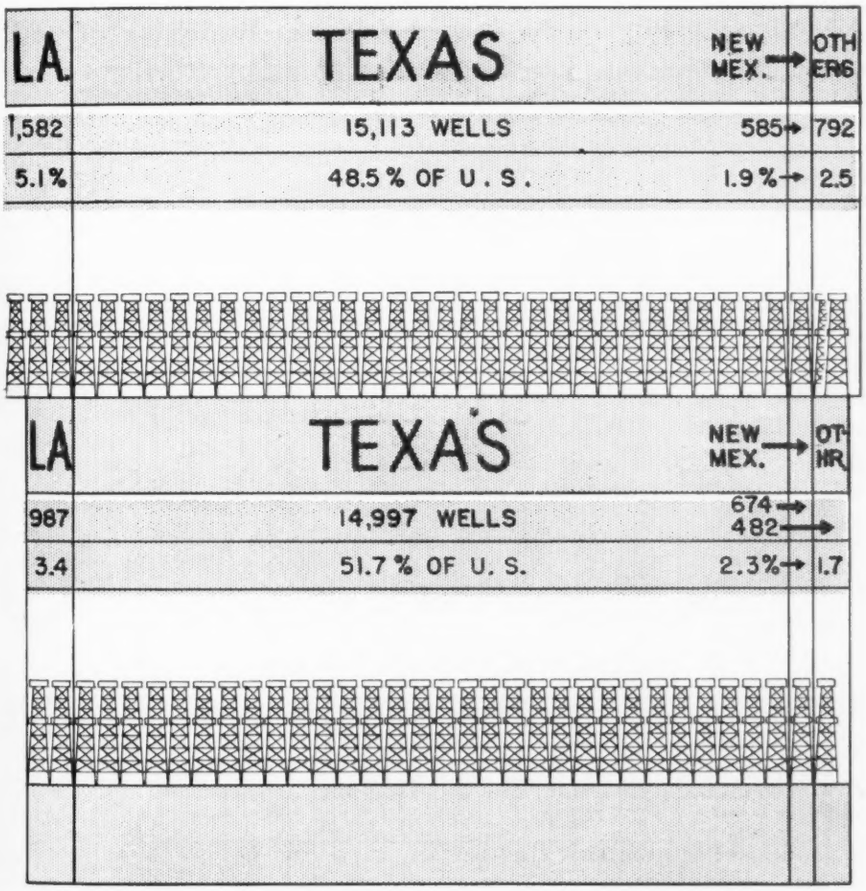
Is Indicated

Survey shows probability of slight rise in number of well completions in fields of United States in 1938

cause of special circumstances, such as war or threats of war, then the drilling estimates might prove too low.

The forecasts have been based, in other words largely on known factors and definite probabilities, and have not taken into serious account the merely remote possibilities. For on this basis, the estimates indicate what is reasonably to be expected.

It is quite likely, of course, that the forecasts for some of the states or districts will prove inaccurate, because of unforeseen local developments. But such errors should tend to compensate each other, and therefore to leave the national forecast essentially correct.



Previous Forecast Fulfilled

In making this forecast, the staff men had behind them the experience gained in furnishing estimates a year ago, and could profit by errors made at that time. At the beginning of 1937 they made estimates indicating that 27,450 wells would be drilled in the United State during the year, or 15 percent more than the 23,919 actually completed in 1936.

That forecast of a 15 percent drilling increase was bold; but even so, it proved a little too conservative. For actually, in 1937, the same men who had made the forecast reported the drilling to completion of 29,014 wells, or 21.3 percent more than in 1936.

In defense of the estimates that were made on 1937 drilling, it should be pointed out that the year exceeded most expectations, not only in the oil industry but also in all lines of business. Furthermore, crude oil prices advanced about 10 percent shortly after the estimates were made and remained at the higher levels the rest of the year, giving added incentive for drilling.

Each Field Considered

The estimates were made not only by states and districts, as indicated in the accompanying charts and tables, but also by counties and fields, although the voluminous details by those minor di-

The Oil Weekly's Forecast of Drilling in 1938 Indicates Increases in Most States and Districts

STATE OR DISTRICT	Wells Actually Drilled In Past 3 Years 1935	1936	1937	Percent Change of 1937 from 1936	How OIL WEEKLY Estimated 1937 Drilling, Total Wells	Estimates of 1938 Drilling Total Wells	Percent Change of 1938 Estimate from 1937 Actual
Arkansas	123	90	140	+ 55	250	320	+128
California	1,092	1,123	1,470	+ 31	1,300	1,455	— 1
Colorado	11	19	19	.....	18	38	+100
Eastern States	2,465	2,959	3,896	+ 29	3,550	4,783	+ 22
Kansas	1,314	1,722	2,657	+ 54	1,750	3,215	+ 21
Louisiana	732	994	987	— 0.7	1,431	1,582	+ 60
North Louisiana	321	556	510	— 9	1,010	987	+ 93
South Louisiana	411	438	477	+ 8	421	595	+ 25
Michigan	602	756	925	+ 22	867	860	— 7
Montana	171	193	200	+ 4	170	215	+ 7
Nebraska	.....	1	.....	.....	.....	8	.....
New Mexico	302	564	674	+ 19	710	585	— 13
Oklahoma	2,320	2,857	2,926	+ 2	2,600	2,710	— 7
Southeastern States	20	12	17	+ 42	15	55	+223
Texas	11,525	12,527	14,997	+ 19	14,664	15,113	+ 1
East Texas Field	4,124	2,627	2,466	— 6	2,000	2,000	— 19
Rest of East Texas	311	566	1,007	+ 81	1,235	772	— 23
North Texas	2,136	2,179	2,254	+ 3	3,000	2,890	+ 29
South Texas	1,950	3,321	3,594	+ 8	3,515	3,645	+ 1
Corpus Christi Area	.....	.....	1,456	.....	.....	1,930	+ 33
Laredo Area	.....	.....	1,522	.....	.....	1,165	— 31
San Antonio Area	.....	.....	616	.....	.....	550	— 11
Texas Gulf Coast	1,103	1,127	1,537	+ 36	1,124	1,645	+ 7
Texas Panhandle	670	665	838	+ 26	800	786	— 6
West Texas	813	1,579	2,898	+ 83	2,490	3,050	+ 5
West Central Texas	418	463	403	— 13	500	325	— 17
Utah	1	.....	1	+100	.....	7	+600
Wyoming	73	102	105	+ 3	125	149	+ 42
Total	20,751	23,919	29,014	+ 21.3	27,450	31,095	+ 7.2

visions are not herewith published.

Estimates for individual fields were based on consideration of the lease obligations and drilling programs of the companies operating in those fields. And probable new fields also were taken into consideration, by studying prospective wildcatting and making allowance in each area for the usual proportion of discoveries among wildcats drilled.

The estimate given here of an increase of about 7 percent in drilling in 1938 stands up well under scrutiny from any angle.

It conforms closely, in the first place, with present plans of the oil companies, considered in the aggregate. Some of the companies, large and small, have tentatively planned to drill somewhat fewer wells in 1938 than in 1937. In compensation, however, some contemplate increased drilling. And finally numerous companies expect to drill around the same number of wells.

Consequently, the forecast as here made is closely in line with those tentative plans of the oil concerns.

Larger Demand Expected

In the second place, the forecast conforms closely with general expectations regarding the demand for petroleum in the coming year.

For in the light of most estimates, it appears that petroleum demand in the United States in 1938 likely will be around 5 percent larger than in 1937. This is a conservative figure, based on estimates of increases ranging generally from 3 to 6 percent. One major company, for instance, is tentatively operating on the assumption of a 4 percent increase in demand in 1938, and various economists have estimated an increase of 5 percent. A member of the Texas Railroad Commission well informed on conditions in the oil industry, recently estimated that petroleum demand in the United States would be 6 percent larger in 1938 than in 1937.

If those estimates of petroleum demand prove approximately correct, the estimate given here of a 7.2 percent increase in drilling also very likely will prove fairly accurate.

For an increase in petroleum demand normally necessitates an expansion of drilling, just as a decrease in demand permits a reduction of drilling.

In 1937, for instance, the total demand for United States oils was 10 percent larger than in the previous year, and drilling was up 21.3 percent. Similarly, other recent years have brought increases in drilling as well as in demand and production.

Fair Prices Promised

The forecast of drilling presented here also appears sound when considered in relation to the crude

Drilling Activity in the United States at Beginning of 1938 Greater Than at the Beginning of 1937

(A Survey by The OIL WEEKLY)

STATE OR DISTRICT	RIGS IN OPERATION Total In Use 1937	1938	Drilling 1937	1938	Rigs Up 1937	1938	Shut Down 1937	1938	Derricks 1937	1938	Locations 1937	1938	Total Operations 1937	1938
Arkansas	20	43	16	33	...	3	4	7	6	1	...	...	26	44
California	361	360	248	249	64	72	49	39	...	...	16	77	377	437
Colorado	21	28	4	11	3	2	14	15	...	2	1	...	22	30
Eastern States	349	538	228	324	37	50	84	164	15	51	20	28	384	617
Illinois	38	144	8	58	4	7	26	79	...	32	3	14	41	190
New Fields	8	121	2	54	...	7	6	60	...	28	...	12	48	161
Old Fields	30	23	6	4	4	...	20	19	...	4	3	2	33	29
Indiana	26	36	18	27	1	...	7	9	2	1	2	2	30	39
Kentucky	13	24	9	13	1	3	3	8	2	3	3	3	18	30
New York	18	23	11	13	1	1	6	9	1	1	1	...	20	24
Ohio	91	122	65	82	8	12	18	28	5	8	2	2	98	132
Pennsylvania	23	37	15	21	4	7	4	9	2	3	2	...	27	40
West Virginia	140	152	102	110	18	20	20	22	3	3	7	7	150	162
Kansas	475	442	340	331	89	41	46	70	...	...	54	29	529	471
Louisiana	182	239	145	184	20	24	17	31	8	11	36	42	226	292
North Louisiana	86	91	68	73	12	9	6	9	5	3	12	6	103	100
South Louisiana	96	148	77	111	8	15	11	22	3	8	24	36	123	192
Michigan	195	209	161	183	34	26	...	...	...	...	50	25	245	234
Montana	43	41	27	22	2	1	14	18	...	...	...	...	43	41
Nebraska	1	2	1	1	...	...	...	1	...	...	...	...	1	2
New Mexico	123	108	96	94	16	8	11	6	...	...	2	13	125	121
Oklahoma	639	454	466	292	50	55	123	107	...	...	92	49	731	503
Southeastern States	17	25	8	6	...	...	9	19	...	1	2	2	19	28
Alabama	2	4	.....	.....	...	...	2	4	...	...	...	1	2	5
Florida	2	4	1	2	...	...	1	2	...	...	...	...	2	4
Mississippi	13	17	7	4	...	...	6	13	...	1	2	1	15	19
Texas	1,480	1,646	1,167	1,246	98	170	215	230	151	148	313	295	1,944	2,089
East Texas Field	95	105	62	71	9	10	24	24	30	22	15	21	140	148
Rest of East Texas	235	198	168	126	19	29	48	43	54	26	31	36	320	260
North Texas	176	202	141	162	16	17	19	23	10	24	36	44	222	270
South Texas	297	300	226	230	26	31	45	39	11	19	88	105	396	424
Texas Gulf Coast	143	192	121	157	11	23	11	12	27	32	38	29	208	253
Texas Panhandle	131	170	104	134	9	21	18	15	1	5	23	8	155	183
West Texas	339	416	298	323	5	38	36	55	16	19	69	44	424	479
West Central Texas	64	63	47	43	3	1	14	19	2	1	13	8	79	72
Utah	4	.....	4	.....	...	...	...	...	...	...	...	...	4	.....
Wyoming	55	59	30	36	3	4	22	19	...	...	7	16	62	75
Totals	3,965	4,194	2,941	3,012	416	456	608	726	180	214	593	576	4,738	4,984

oil market, which undoubtedly exerts a strong influence on field work. For despite some current fears for the safety of the prevailing crude price postings, crude oil production remains under exceptionally strict control and crude stocks are comparatively small, indicating that crude oil prices will continue comparatively good.

This prospect of satisfactory market conditions in 1938 constitutes, in fact, a support for the drilling forecast.

Prices Influence Drilling

For it has been demonstrated over a period of many years that drilling is directly encouraged or discouraged by high or low crude oil prices. And since it is promised that crude prices of 1938 will not be greatly different than those of 1937, it is indicated that drilling likewise will not undergo any large change.

Two charts presented herewith show how greatly crude oil prices have affected drilling in the past 30 years. In years of low crude prices, drilling has been comparatively small; and in years of good prices, drilling has been heavy.

In 1915, for example, a relatively low average crude price of 64 cents a barrel resulted in the drilling of only 14,157 wells; while in 1920 the average price of crude oil soared to $3.07 a barrel and was accompanied by the drilling of 33,911 wells, the all-time record.

In the 1920's the average price of crude remained largely between $1.25 and $1.50 a barrel, and the industry regularly drilled between 20,000 and 25,000 wells a year. In the recent depression, with the disorder in the East Texas field further complicating the situation, crude prices were extremely low and drilling was discouraged. But in more recent years, prices have been better, and drilling has steadily increased.

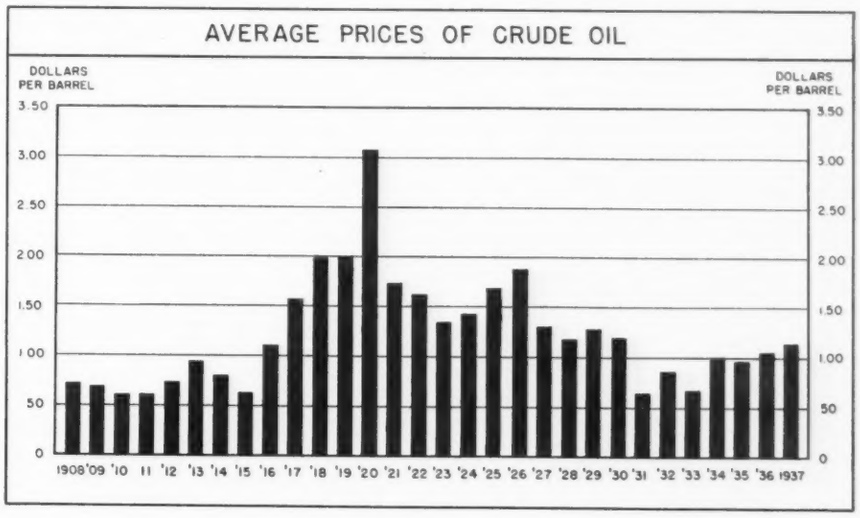
More Reserves Needed

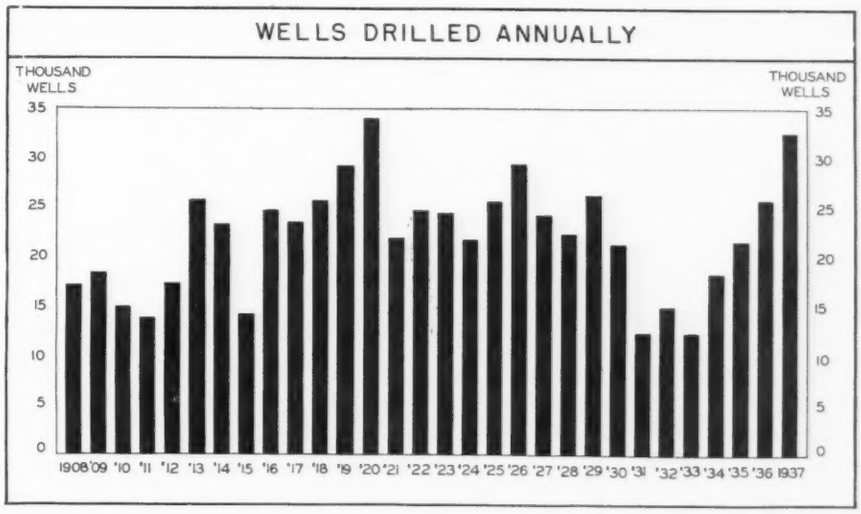
Another factor that will tend to bring about the fulfillment of the forecast of demand made here is the situation regarding crude oil reserves.

That situation is one that is distinctly conducive to continued active drilling. For the present known reserves of crude oil are moderate, and there is a definite need for continued active exploration and field work in order to maintain the existing reserves around the current levels, with heavy drains on the known supplies being made daily.

Crude Oil Prices Largely Control Drilling

The two charts below indicate that crude oil prices have a direct and immediate effect on drilling. In the past 30 years, upward or downward fluctuations of prices nearly always have been accompanied by increases or decreases in drilling. The charts are based on Bureau of Mines figures, although estimates are embodied in the data for 1937.





Requirements Promote Drilling

In recent years the industry has been unusually active in exploration and drilling; and despite the great activity, it has made discoveries of new fields only about compensating for the concurrent withdrawals from the older fields.

Consequently, there is operating constantly a fundamental strong incentive for drilling for the industry as a whole. And this incentive undoubtedly will exert a material influence in 1938, as it has done in recent years, particularly in view of the expectations of a further increase in petroleum demand and the promise that markets will remain satisfactory.

In any event, many individual companies undoubtedly will feel in 1938 the need for replenishing or increasing their crude oil reserves, and consequently will be obliged to carry out relatively aggressive drilling campaigns.

Although present crude oil reserves in the United States are generally considered adequate in relation to the present and prospective demand those reserves naturally are not held proportionately by the various oil companies. Some concerns therefore are less favorably situated than others regarding reserves. And in 1938, as in other periods, those companies in need of producing properties may be expected to drill actively or to encourage drilling through the purchase of properties developed by others.

Expenditures

Budgets of most companies indicate that more will be spent for drilling and pumping operations in 1938

By BRAD MILLS
Associate Editor

OIL COMPANIES will spend more for drilling and pumping operations during 1938 than they spent in 1937. Indicated expenditures, based on actual oil company programs for the current year, point substantially upward, and only a decided unfavorable situation in the economic picture can change the course of the expenditure curve. With a larger number of wells planned for 1938, increased footage per well drilled, and a definite upward trend in pumping operations, total expenditures can fall below those for 1937 only in case of unfavorable developments not now in sight.

An analysis of drilling requirements by states, fields and companies reveals a development program that requires drilling a larger number of wells than were drilled in 1937. Expenditures must roughly keep pace with activity, when the trend is upward. A careful check of development programs in every oil producing state indicates that slightly over 31,000 wells will be drilled during 1938. The estimated cost of drilling for the year is $683,190,000, which gives an average well cost of about $22,000.

The total drilling expenditures for 1938 will be about 10 percent above those for 1937, the basis for such an estimate being the actual programs of principal operating companies. The majority of producing companies have indicated their expenditures for 1938 will be either equal to or greater than those for 1937. A minority of the large producing companies have announced drilling programs that call for lower expenditures than were recorded during 1937. The average for all companies is unmistakably upward, and such an average must be used as a basis for estimates. Several large companies indicated that development programs would be increased in the event of favorable consummation of land deals now pending.

The drilling cost per well has not changed appreciably in the major producing states, but in such states as Arkansas and Illinois the average well cost has jumped violently because of new developments. The increase in the number of wells and the greater footage will account for increased expenditures in the larger producing states.

Forecast of Drilling Expenditures for 1938

Arkansas:	
Shallow	$1,320,000
Deep	9,000,000
California	65,475,000
Colorado	1,330,000
Illinois	17,600,000
Indiana	1,015,000
Kansas	77,160,000
Kentucky	2,680,000
Louisiana:	
North	34,545,000
South	32,725,000
Michigan	18,920,000
Montana	5,160,000
Nebraska	240,000
New Mexico	21,060,000
New York	500,000
Ohio	14,175,000
Oklahoma	74,525,000
Pennsylvania	3,150,000
Southeastern States	1,375,000
Texas:	
East	30,000,000
East Central	16,212,000
North	43,350,000
South	43,740,000
Gulf Coast	62,510,000
Panhandle	10,218,000
West	76,250,000
West Central	2,600,000
Utah	280,000
West Virginia	11,605,000
Wyoming	4,470,000
	$683,190,000

The service life of oil field equipment directly affects expenditures. Both oil companies and drilling contractors have attempted to arrive at satisfactory depreciation rates, with the hope that future expenditures might be estimated or approximated. Depreciation and obsolescence have been controversial subjects for a generation, and it has been only through the use of mortality experience as a basis that satisfactory averages have been obtained.

Drilling equipment is subjected to hard usage, and its service life is comparatively short. Oil companies, drilling contractors and the United States government have attempted for 15 years to find a satisfactory rate and basis for depreciation. The drilling contractor who uses his equipment long and hard probably is best qualified to establish a rate of depreciation on the various equipment items.

A Gulf Coast drilling contractor uses 1095 actual operating days or 4½ years' elapsed time as the service life of a rotary drilling outfit. All items except drill pipe and drilling line are included to form one depreciation unit, and the service life is assumed to be 4½ years. Although 1095 days equal only

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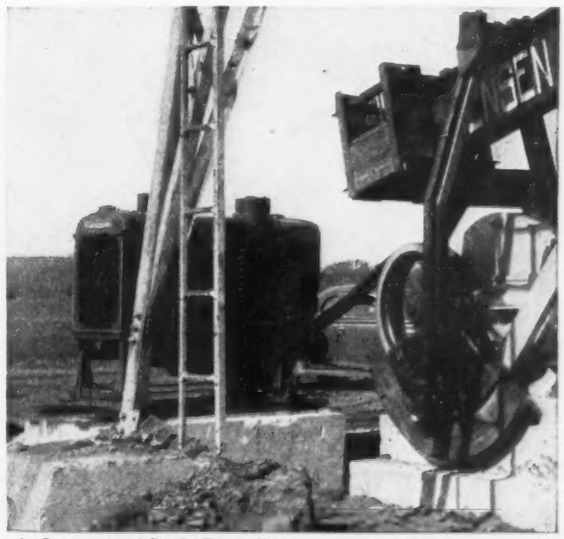
Powerful International Six-Wheelers do the heavy hauling in the fields. This unit, owned by Moore & Jones, Shreveport, La., has just hauled the boiler through some mighty tough going.



An International PA-50 Power Unit pumping 550 barrels a day for the National Refining Company on the Ryanhart lease near Russell, Kans.

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Cost of Representative Rotary Drilling Outfits, Using Steam as Power

	Heavy Outfit	Medium Outfit
Draw works	$16,000	$12,000
Rotary	4,000	3,000
Engines	6,000	3,000
Pumps	7,400	5,000
Boilers	16,000	9,000
Wire lines	1,250	1,000
Derrick	4,000	2,500
Swivel	2,700	1,500
Boiler feed, etc	4,000	2,500
Drill pipe	33,060	20,000
Hose	400	300
Mud screens	1,325	1,325
Chain	600	400
Auxiliary equipment	2,000	1,500
	$98,735	$63,025

three years, experience has shown that the actual "down" time equals half the operating time.

The 4½-year basis assumes that the equipment will receive such constant use as a drilling contractor can give it under difficult operating conditions. The derrick, boilers, draw works, swivel, pumps, engines, and all heavy equipment except the drill pipe and wire line are considered on a common basis. The equipment is depreciated 1/1095 of its value for every day of use. Theoretically, it would be possible to write off the equipment in 1095 days, or three years, but such a procedure could be followed only where the equipment was used every day. The 4½-year elapsed time is used as a more definite basis for service life, due to past experience with "down", nonproductive, or lost time.

The depreciation on drill pipe has been set at 1½ cents per foot per day for all pipe in use. Obviously the depreciation on 8000 feet of drill pipe for one day would be $120. Drill pipe receives severe usage and its depreciation rate must be based on mortality experience. Steady use of a drill pipe string under varying conditions has given this drilling contractor a definite basis for depreciation.

Drill pipe replacements during 1938 will be particularly heavy, because of the small surplus available, introduction of new and improved types, and strenuous use. The increase in drilling depths particularly affects drill pipe requirements, but the severity of drilling conditions usually is the principal factor.

The replacement rate during an active development period is much more rapid than during a dull period. Expenditures during either the 1926-1929 or the 1934-1937 period were more than those recorded during the 1930-1933 period, when viewed from an equipment standpoint. Since activity was sharply down during the depression years, equipment was idle and did not wear out. Obsolete and unsafe equipment is discarded during prosperous times, but it is used to the limit during a depression.

Last year was one of heavy replacements, but the development program for 1938 calls for even heavier use of equipment of every type. An inventory of equipment as of January 1, 1938, did not show a large surplus in any department, and there was an actual shortage in several of the more staple items. Every indication points to a steady continuation of expenditures during 1938, and only wide changes in current drilling programs will cause total purchases to fall below those of 1937.

The one factor that affects oil industry expenditures most is the general economic picture for all industries. An unfavorable turn in general conditions will be reflected in reduced oil industry expenditures. All estimates for 1938 expenditures are based on the belief that oil companies will substantially carry out their planned development programs.

A radical reduction in crude oil prices would adversely affect expenditures, but no sharp cuts are in sight. The indicated consumption of petroleum products for 1938 and 1939 justifies a continuation of developments that should give an increase in total drilling equipment expenditures.

If the service life of drilling equipment is placed at four or five years, it seems fair to assume that replacements during a busy year will equal 20 or 25 percent of the total equipment in use. Obsolescence and inadequacy take a heavy toll, however, and new equipment to replace old and unsuited equipment will appear in generous quantities. The newer and heavier equipment also represents a much greater outlay than it will replace. Increased field operations particularly call for heavy expenditures for new equipment. There is very little idle equipment in sight for meeting urgent drilling demands that may develop during 1938.

The trend toward deeper drilling has changed equipment requirements in several areas. Either the daily depreciation or the depreciation per foot drilled is much higher in deep operations than in shallow drilling, since both the time factor and original equipment cost must be considered. It is not unusual to drill 1000 feet of shallow hole in 24 hours, but in deep operations the average daily footage drilled is low.

During an active year, from 300 to 500 complete rotary drilling outfits are worn out and replaced. The same figures would roughly apply to cable tool outfits. During 1935, 1936 and 1937 new rotary outfits appeared in large numbers, in addition to the usual replacements. The gain in drilling operations required additional rigs of every type.

Expenditures for cable tool drilling outfits should not be overlooked. Although a cable tool outfit costs only a fraction as much as a heavy rotary outfit, the use of cable tools is a very important part of total operations. It is not generally known that almost half of the active drilling outfits in the United States are cable tools. Of the 4200 active rigs in operation that are immediately available in the United States, more than 1800 are cable tool outfits and about 2400 rotary outfits. Drilling in the Rocky Mountain states, Michigan and the Eastern States is largely done with cable tools, although rotaries are showing gains in several districts. Cable tools fill a distinct need in the industry and their use will continue.

A heavy rotary drilling outfit costs about $90,000, a medium weight outfit about $70,000, and a light weight outfit about $50,000.

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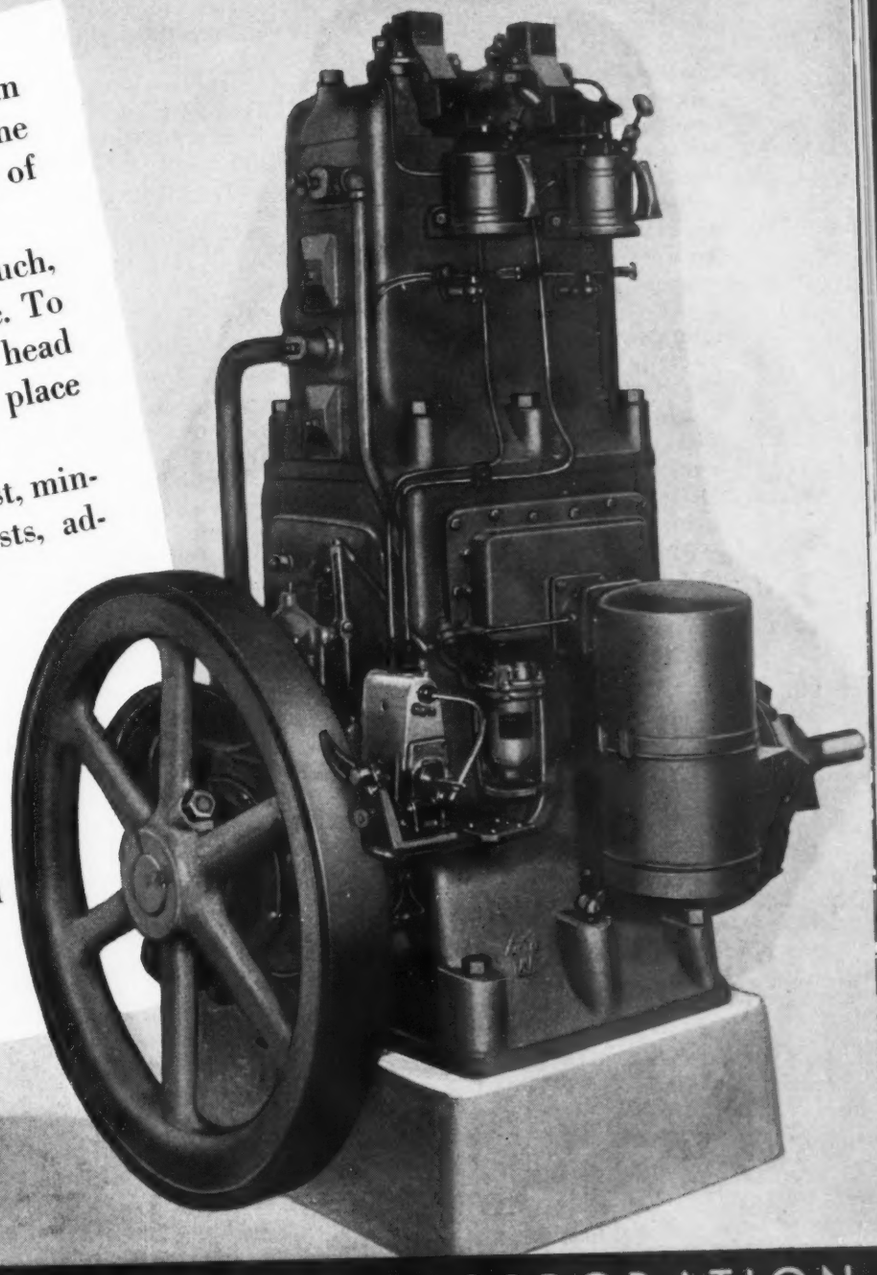

33 . . . 1938

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Portable rotary drilling outfits cost considerably less, and while they are efficient within their limitations, they are ordinarily not suited to deep drilling operations.

An oil company or drilling contractor wishing to start three new rotary drilling outfits of a heavy type must spend around $225,000. A large and active producing company that does its own drilling will spend at least one dollar during 1938 for each five dollars it has invested in drilling equipment, and heavier expenditures are likely if drilling continues at a higher rate than during 1937.

The discovery of three or four major fields — a Wilmington, an Oklahoma City, a Conroe and a Rodessa—could easily create an increased demand for all types of drilling equipment. Development in sight actually equals that of 1937, and additional work created by new discoveries may give 1938 the advantage by a wide margin. The type of discoveries and lease requirements will affect expenditures in every area. The discovery of a major field in a congested district, and two or three fields that require immediate development would tax the output of drilling equipment manufacturers.

Manufacturers were unable to give immediate delivery on several equipment items during part of 1937, the demand in several active fields alone having exceeded the supply. Important oil discoveries in either shallow or deep districts may change the equipment picture during 1938. In the event of shallow discoveries, portable drilling machines and light rotaries will be in great demand. Deep oil discoveries of a major nature will call for additional heavy equipment. Continuation of the average deep development is assured by programs already outlined.

Equipment used for deepening, working over and cleaning out wells undoubtedly will show a gain during 1938. California operators particularly have plans completed for extensive deepening and redrilling work during the year. Much of the equipment used for this work will be standard rotary drilling outfits, but portable equipment will be extensively used also. The various special tools and cleaning-out machines will play an important role in all workover work. In several fields producing from more than one zone, redrilling operations will show a heavy increase. Deepening or redrilling from two to three wells equals the drilling of one new well, the nature of deepening operations depending on local conditions.

The curve for drilling equipment expenditures necessarily fluctuates with the activity curve. A sharp rise in drilling operations usually is preceded by a heavy increase in equipment purchases. Conversely, a marked decline in field operations is immediately followed by a decline or drying up of equipment purchases.

The projection of expenditures through 1938 must be based on the assumption that at least as many wells will be drilled as were drilled in 1937. Such a program necessarily calls for a full volume of expenditures through replacements and new purchases. Even a steady development program will require increased expenditures, with obsolescence and inadequacy adding to the usual replacements. New models, improvements and the natural desire to eliminate old equipment always stimulate equipment purchases during prosperous times. The discovery of an important new field can easily change the equipment sales curve from a downward to an upward trend.

The number of wells drilled is not a more important consideration than footage involved. Fifty wells drilled in a field producing from a depth of 8000 feet often require a greater equipment expenditure than 100 wells drilled in a 4000-foot field. Several new fields now under development produce from great depths, and in spite of the small number of wells planned, equipment requirements for 1938 will be heavy. Footage drilled in many districts will show an increase, in the face of a decrease in the total number of wells drilled.

The average well depth has been steadily increasing for several years. Equipment requirements normally increase faster than the increase in well depths, due to the more difficult drilling conditions encountered with greater depths. The drilling time between 4000 feet and 6000 feet usually is greater than the drilling time between the surface and 4000 feet, and almost every other comparison of shallow and deep drilling shows a much slower progress with the latter.

Pumping expenditures for 1938 will be considerably higher than those for 1937. About 12,500 wells will be placed on the pump during the current year, a substantial increase over the number for 1937. The cost of equipping such a number of pumping wells, plus replacements on about 250,000 old pumping wells will give an expenditure sharply above that of last year. The average cost of equipping wells has increased during the past few years, due to greater depths and the more rugged nature of equipment. The cost of equipping each well for pumping varies from $3000 to $6000 for the representative well in each district, but either the very shallow or deep pumping well may show a sharp variance from the national average.

An analysis of new pumping operations for the various states shows a higher average for the principal producing districts. Wells going on the pump in some of the most active states will show a heavy increase over 1937, particularly in Texas.

The cost of placing 12,500 wells on the pump, plus replacement for older pumping wells, is conservatively placed at $67,500,000. Satisfactory averages for replacement expenditures are difficult to obtain, but a fair average for new pumping well equipment may be estimated. Some of the new pumping units cost from $5000 to $10,000, but the greater number of less inexpensive installations brings the average down.

A survey among the principal producing companies has brought returns that indicate a sharp increase in expenditures for pumping equipment. Many companies plan to spend 50 percent more during 1938 than they spent during 1937. Several flowing fields are approaching the pumping stage, and installation of pumping equipment during the current year alone will maintain production. Many companies showing a decrease in drilling operations show a decided increase in pumping operations.

Pumping equipment manufacturers may have difficulty in filling orders for the current year. The East Texas field, Texas as a whole, Kansas, Louisiana and Oklahoma will require a steady supply of pumping equipment to meet requirements. Flowing fields in every major producing state are approaching the pumping or artificial lift stage, and immediate need for equipment is evident. Other means of artificial lift have been successfully applied in several districts, but straight pumping operations continue popular in the shallow and medium depth fields.

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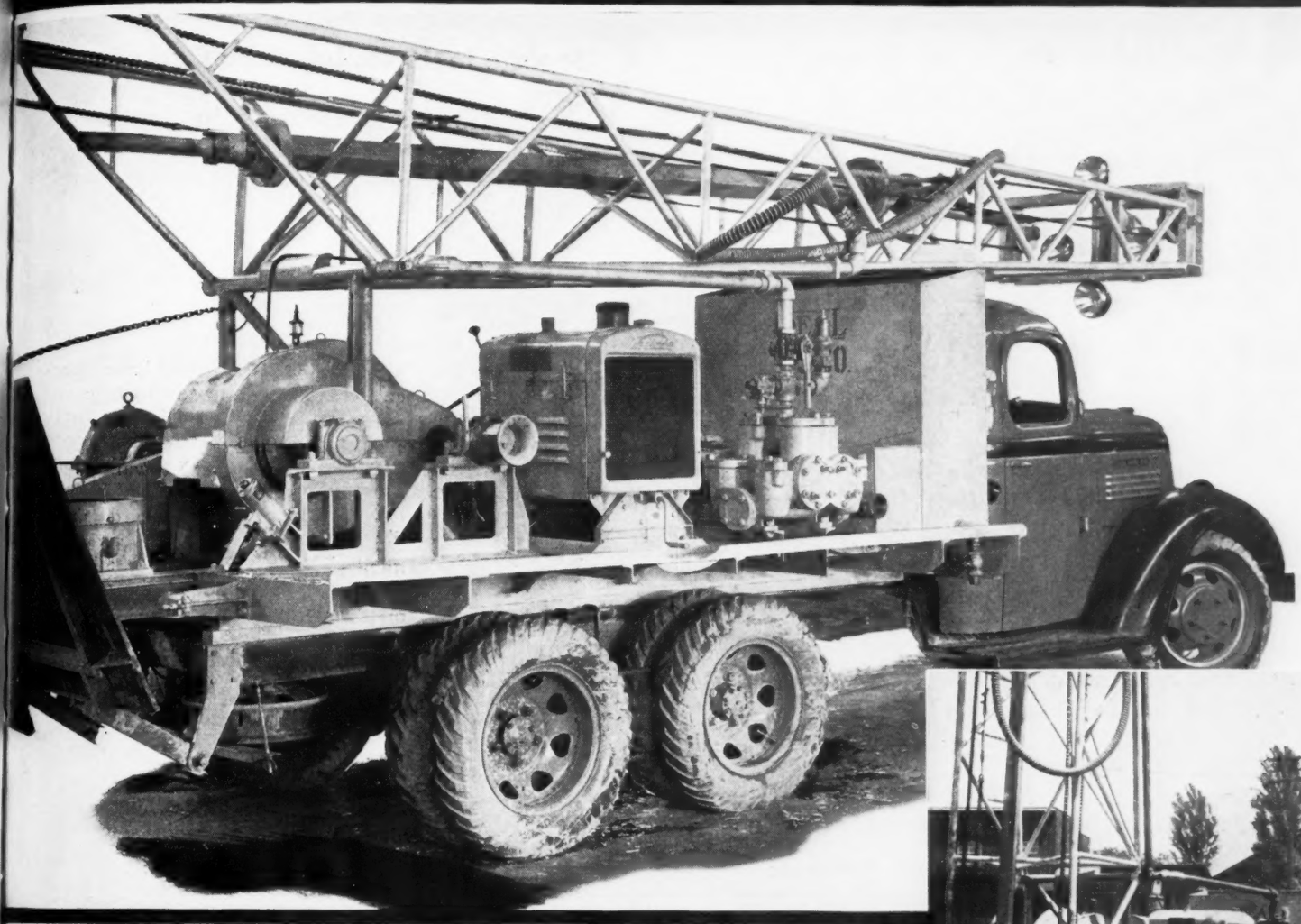

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More Footage

Industry is expected to drill more footage in 1938, because of gain in completions and increase in depths

By L. J. LOGAN
Associate Editor

IT is probable that in the drilling of oil and gas wells in 1938, more footage will be drilled than in 1937, even though the number of feet involved in 1937 was around the all-time record proportions of 1920, when scarcity of oil and high crude prices caused the completion of an all-time record number of wells.

Two important factors lead to this conclusion that 1938 will bring a further increase in footage drilled.

(1) In the first place, the number of well completions in 1938 is expected to be slightly larger than for 1937, as pointed out in another article in this issue. A survey by the staff of this publication has indicated that for the United States as a whole, 1938 will bring about 7 percent more drilling than 1937, despite expectation of somewhat less drilling in several states and districts.

Such an increase in the number of completions would, of course, bring about a similar gain in footage drilled. Even a smaller increase in completions would tend to expand the footage, and reduced rather than increased drilling would have to occur to cause a decline in footage.

(2) The second factor indicating a further increase in footage in 1938 is the established trend toward greater drilling depths. In the past three years the average drilling depth in the United States has increased annually. The average depth of all wells completed in 1937 was the greatest on record, as deeper fields assumed an increasingly important role in the drilling picture.

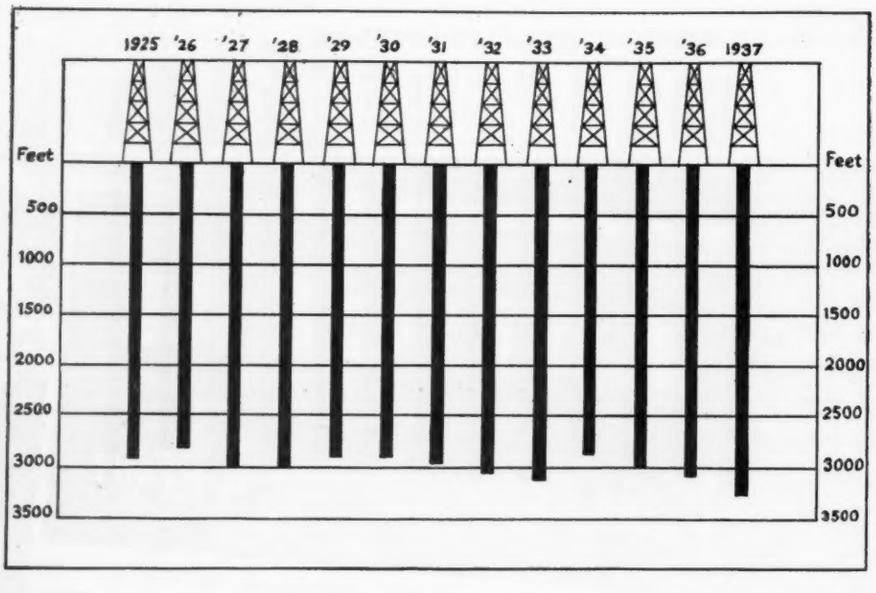
It is logical to assume that 1938 will bring a continuation of this prevailing trend toward deeper drilling, and if the assumption is sustained by actual developments, the drilling of a greater amount of footage will be promoted.

In 1937 there was a noteworthy increase in the average drilling depth in the United States, as the industry developed new, deeper fields and deeper pay zones in the older fields. For the country as a whole, the average depth per well of all completed wells was 3230 feet. In 1936 the average depth per well was 3052 feet, in 1935 it was 2965 feet, and in 1934 the wells averaged 2845 feet each.

The 1937 average depth similarly was greater than in other earlier years, despite the fact that at various periods the depth has been temporarily increased by heavy development in deeper-than-average fields, such as East Texas, Conroe, Oklahoma City, and Seminole.

In 1937, on the other hand, no particular field or group of fields abnormally affected the average drilling

Average Drilling Depth in 1937 Greatest on Record



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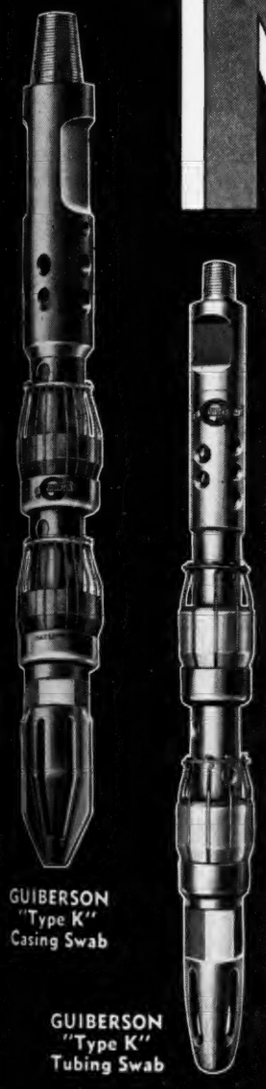

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depth. The increase that occurred resulted merely from the growing importance of deeper producing horizons and of deeper exploration.

As pointed out in another article in this issue, drilling below 10,000 feet became commonplace in 1937, as over 80 wells had been drilled beyond that level by the end of the year.

Several fields now are producing oil commercially from depths greater than 10,000 feet, and about half a dozen exploratory tests have been drilled below 12,000 feet.

South Louisiana Foremost

Most of the states and districts of the United States have participated in the national trend toward deeper drilling.

Coastal Louisiana in 1937 maintained its distinction as the outstanding deep drilling district of the world, showing a further increase in average drilling depth. The 477 wells completed in the area in 1937 had depths aggregating 2,860,788 feet, indicating an average depth of 5997 feet per well. In 1936 the average of the district was 5774 feet. South Louisiana has numerous deep fields, including several yielding oil from depths greater than 10,000 feet. Success in developing the deep production has led to the drilling of many unusually deep wildcats in the district.

More Wells and Greater Depths Increase Footage Drilled

YEAR	Wells Completed	Footage Drilled	Average Depth per Well
1925	25,406	73,677,400	2900
1926	28,995	81,186,000	2800
1927	22,301	66,903,000	3000
1928	19,964	59,892,000	3000
1929	23,463	67,925,285	2895
1930	19,848	57,557,200	2900
1931	11,716	34,259,110	2924
1932	14,290	43,033,422	3011
1933	11,700	36,270,000	3100
1934	17,508	49,803,556	2845
1935	20,751	61,523,100	2965
1936	23,919	73,000,320	3052
1937	29,014	93,725,067	3230

The Texas division of the Gulf Coast in 1937 became an important challenger of the Louisiana Gulf Coast for the distinction as the leading deep drilling area, as its average drilling depth increased to 5742 feet per well from 5241 feet in 1936. The average for 1937 resulted from the drilling of 1537 wells having combined depths of 8,825,709 feet.

Deep drilling also extends southwesterly on the Gulf Coast beyond the regular Texas Gulf Coast district, into the Corpus Christi area of South Texas. And that district ranks third among the more important deep drilling regions. In 1937 its average drilling depth was 5218 feet per well, as the 1456 wells completed there within the year had depths aggregating 7,597,442 feet.

Outside Gulf Coast

Outside the three divisions of the Louisiana-Texas Gulf Coast, the greatest average drilling depth in 1937 among the major districts was that of 4111 feet in North Louisiana. That district has been an area of relatively deep drilling since the discovery of the deep oil production at Rodessa. For the drilling records have reflected not only the development of that field but also the resultant deep drilling in other fields and wildcat areas.

Arkansas also ranked among the areas of deeper drilling in 1937, in consequence of the extension of Rodessa field into the state and of the early development of the 7500-foot Schuler field.

Other areas where drilling depths are relatively great include California and Eastern Texas. The average depth of California wells completed in 1937 was 4061 feet, while that of wells in Eastern Texas was 3937 feet.

Wells, Footage, and Depths Drilled in Past Four Years

(Determined from The Oil Weekly's records on depths of completed wells.)

STATE OR DISTRICT	WELLS COMPLETED				FOOTAGE DRILLED				AVERAGE DEPTH PER WELL			
	1934	1935	1936	1937	1934	1935	1936	1937	1934	1935	1936	1937
Arkansas	93	123	90	140	277,635	352,310	287,119	636,775	2985	2864	3190	4548
California	675	1,092	1,123	1,470	3,110,462	4,546,671	4,634,528	5,970,047	4608	4164	4127	4061
Eastern States	2,265	2,465	2,959	3,896	3,779,438	4,254,368	5,411,153	7,776,289	1669	1726	1399	1995
Illinois	.....	.....	4	408	.....	.....	7,348	822,463	....	....	1837	2016
Indiana	.....	.....	165	146	.....	.....	143,525	141,496	....	....	870	969
Kentucky	.....	.....	273	575	.....	.....	197,950	577,518	....	....	729	1004
New York	.....	.....	.....	26	.....	.....	.....	106,414	....	....	....	4092
Ohio	.....	.....	1,918	1,487	.....	.....	3,715,980	2,778,422	....	....	1937	1868
Pennsylvania	.....	.....	.....	283	.....	.....	.....	812,136	....	....	....	2870
West Virginia	.....	.....	599	971	.....	.....	1,346,350	2,537,840	....	....	2248	2614
Kansas	926	1,314	1,722	2,657	2,760,400	4,044,907	5,442,549	8,327,976	2981	3078	3161	3175
Louisiana	801	732	994	987	2,833,358	3,219,665	4,844,021	4,957,590	3537	4398	4873	5022
North Louisiana	403	321	556	510	903,406	850,409	2,315,062	2,096,802	2242	2649	4164	4111
South Louisiana	398	411	438	477	1,929,952	2,369,256	2,528,959	2,860,788	4849	5764	5774	5997
Michigan	483	602	756	925	1,403,480	1,612,782	1,933,671	2,774,394	2947	2679	2558	2999
Oklahoma	1,925	2,320	2,857	2,926	5,154,203	6,679,371	8,968,906	8,731,295	2678	2879	3139	2980
Rocky Mountain States	385	558	879	999	1,032,420	1,696,103	2,937,703	3,379,226	2682	3040	3342	3382
Colorado	.....	.....	19	19	.....	.....	67,580	70,325	....	....	3557	3701
Montana	.....	.....	193	200	.....	.....	466,280	419,032	....	....	2416	2095
Nebraska	.....	.....	1	.....	.....	.....	4,040	.....	....	....	4040	....
New Mexico	.....	.....	564	674	.....	.....	2,130,078	2,540,040	....	....	3777	3750
Utah	.....	.....	.....	1	.....	.....	.....	5,674	....	....	....	5674
Wyoming	.....	.....	102	105	.....	.....	269,725	344,155	....	....	2644	3277
Southeastern States	43	20	12	17	156,620	74,750	35,042	65,094	3642	3737	2920	3829
Alabama	.....	.....	2	2	.....	.....	7,470	13,632	....	....	3735	6816
Florida	.....	.....	2	1	.....	.....	3,590	510	....	....	1795	510
Mississippi	.....	.....	8	14	.....	.....	23,982	50,952	....	....	2998	3639
Texas	9,912	11,525	12,527	14,997	29,295,540	35,042 173	38,505,628	51,106,381	2956	3041	3074	3408
Eastern Texas	4,036	4,435	3,193	3,473	14,773,681	16,154,874	11,993,420	13,663,647	3664	3642	3756	3937
East Texas Field	.....	.....	.....	2,466	.....	.....	.....	8,937,480	....	....	....	3624
Rest of East Texas	.....	.....	.....	1,007	.....	.....	.....	4,726,167	....	....	....	4693
North Texas	2,000	2,136	2,179	2.254	2,455,372	2,634,556	2,999,559	3,866,156	1228	1233	1377	1756
South Texas	1,387	1,950	3,321	3,594	3,792,208	6,114,705	10,639,909	12,857,959	....	....	....	3577
Corpus Christi	.....	.....	.....	1,456	.....	.....	.....	7,597,442	....	....	....	5218
Laredo	.....	.....	.....	1,522	.....	.....	.....	3,727,888	....	....	....	2462
San Antonio	.....	.....	.....	616	.....	.....	.....	1,532,629	....	....	....	2488
Texas Gulf Coast	1,024	1,103	1,127	1,537	4,805,157	5,243,960	5,906,387	8,825,709	4692	4754	5241	5742
Texas Panhandle	463	670	665	838	1,319,923	1,974,259	1,986,952	2,574,211	2851	2947	2988	3072
West Texas	583	813	1,579	2,898	1,577,190	2,298,274	4,251,034	8,645.507	2706	2827	2692	2983
West Central Texas	419	418	463	403	572,009	621,545	728,367	673,192	1365	1487	1573	1670
United States	17,508	20,751	23,919	29,014	49,803,556	61,523,100	73,000,320	93,725,067	2845	2965	3052	3230

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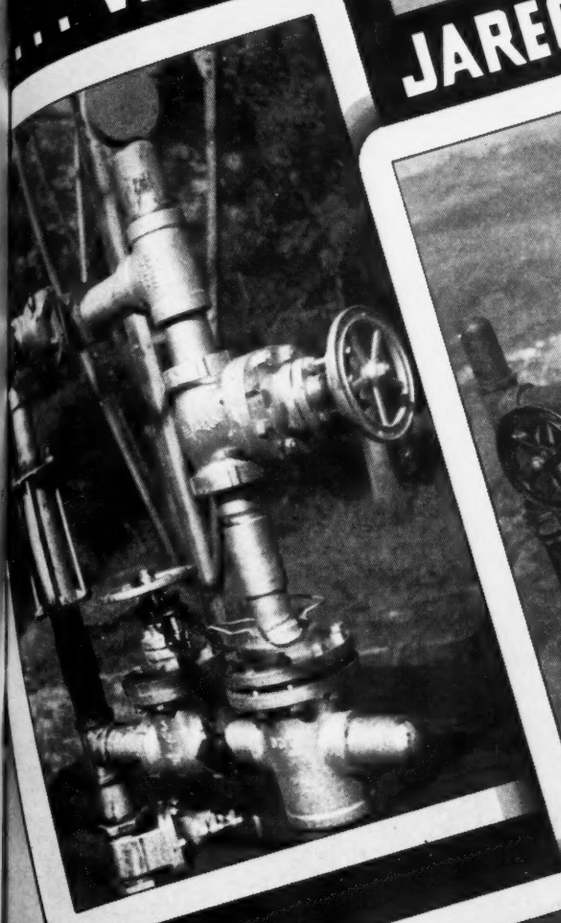

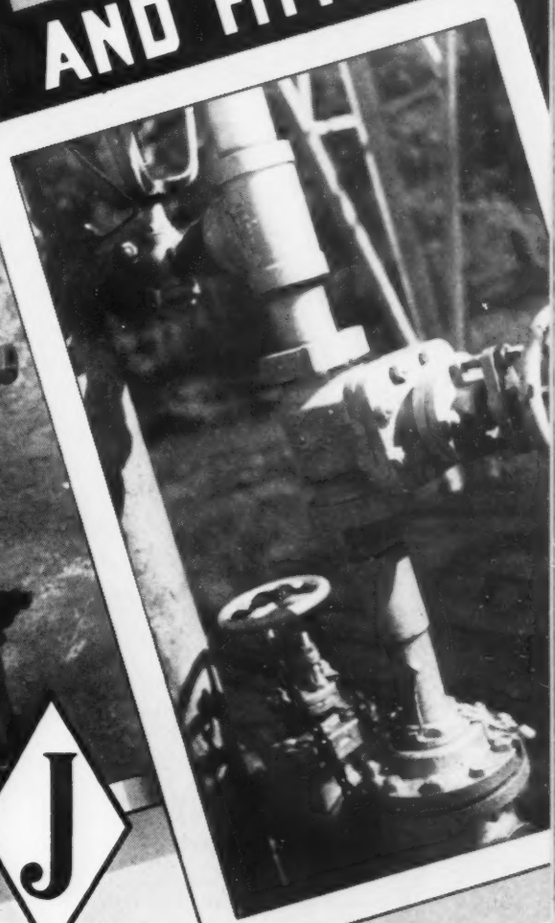

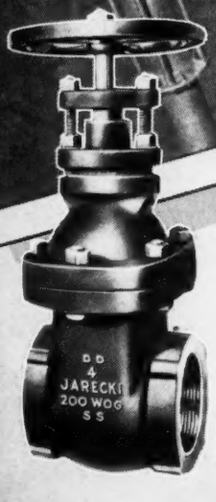

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Fig. 395-X JARECKI Heavy
Standard Gate Valve, 350 Lbs. Test

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Drilling in 1937

Year brought most drilling in history of industry with exception of that in 1920, when crude prices were soaring.

By L. J. LOGAN
Associate Editor

ENCOURAGED by favorable crude oil prices, and prodded by the necessity for developing new productive properties in keeping abreast of heavy petroleum demand, the oil industry of the United States in 1937 drilled the most wells in all its history with exception of the number put down in 1920.

Furthermore, the 1937 drilling was not very far short of the record activity of 1920, when an abnormal stimulus to drilling prevailed, in the form of crude prices averaging $3.07 a barrel for all oil marketed in the United States within the year. The average price in 1937, in contrast, was about $1.20 a barrel.

Drilling Up 21.3 Percent

Wells drilled for oil and gas in the United States in 1937 totaled 29,014, according to the statistics of The OIL WEEKLY. That was 21.3 percent more well completions than the 23,919 in the previous year, and exceeded the totals of 23,463 wells in 1929 and 28,995 in 1926, two other years of heavy field work. The drilling statistics of The OIL WEEKLY do not go back earlier than 1923, but Bureau of Mines reports indicate that 33,911 wells were completed in 1920, the year in which oil and gas well drilling set an all-time record.

The total of 29,014 well completions shown by THE OIL WEEKLY for 1937 includes 20,091 productive oil wells, 2531 gas wells, and 6392 unproductive tests.

Producing Ability Smaller

The 20,091 oil wells, on completion, indicated daily producing ability aggregating 24,137,351 barrels or 1201 barrels daily per well, on the average. The new wells of the year therefore were not quite as prolific as in 1936, when the average initial producing ability of a new well was 1385 barrels daily.

This slight decline in the average initial production per well reflected increased drilling in the more settled producing districts and relatively less concentration of field work in the flush areas. It indicated a further broadening of drilling, to embrace development of the less prolific areas, in consequence of somewhat more attractive crude prices. For the country as a whole, crude prices were nearly 10 percent higher in 1937 than in 1936, as postings were raised that extent in January of 1937.

The smaller average initial production in 1937 also reflected the

Wells Drilled for Oil and Gas in the United States—1859-1937

Source of data: Cumulative totals for 1859-1922 from Bureau of Mines; rest of figures based on weekly reports of completions, as published regularly by The Oil Weekly.

YEAR	Wells Completed	Oil Wells	Gas Wells	Dry Holes	Initial Production	Average per Well
1859–1922	615,353	481,863[1]	14,542[1]	118,948	18,842,525[2]	....
1923	20,513	13,407	1,892	5,214	5,920,019	395
1924	21,713	14,311	2,250	5,152	3,248,211	227
1925	25,406	16,162	2,644	6,600	4,640,924	183
1926	28,995	17,787	2,848	8,360	3,876,811	218
1927	22,301	13,396	2,586	6,319	4,628,246	345
1928	19,964	10,982	2,733	6,249	6,406,370	583
1929	23,463	13,125	3,109	7,229	6,404,145	488
1930	19,848	10,745	3,006	6,097	10,443,833	972
1931	11,716	6,618	2,090	3,008	31,590,024	4,773
1932	14,290	10,151	1,012	3,127	49,471,119	4,873
1933	11,700	7,322	1,003	3,375	21,888,052	2,990
1934	17,508	11,552	1,324	4,632	31,345,350	2,713
1935	20,751	13,486	1,729	5,536	32,135,351	2,383
1936	23,919	16,089	2,237	5,593	22,289,535	1,385
1937	29,014	20,091	2,531	6,392	24,137,351	1,201
Total	926,454	677,087[4]	47,536[3]	201,831	277,267,866[5]	(2)

[1] Gas wells during the period prior to 1916 were included with oil wells.
[2] Initial production prior to 1916 not available.
[3] Includes only gas wells completed since 1916.
[4] Includes gas wells completed prior to 1916.
[5] Includes only initial production reported since 1916.

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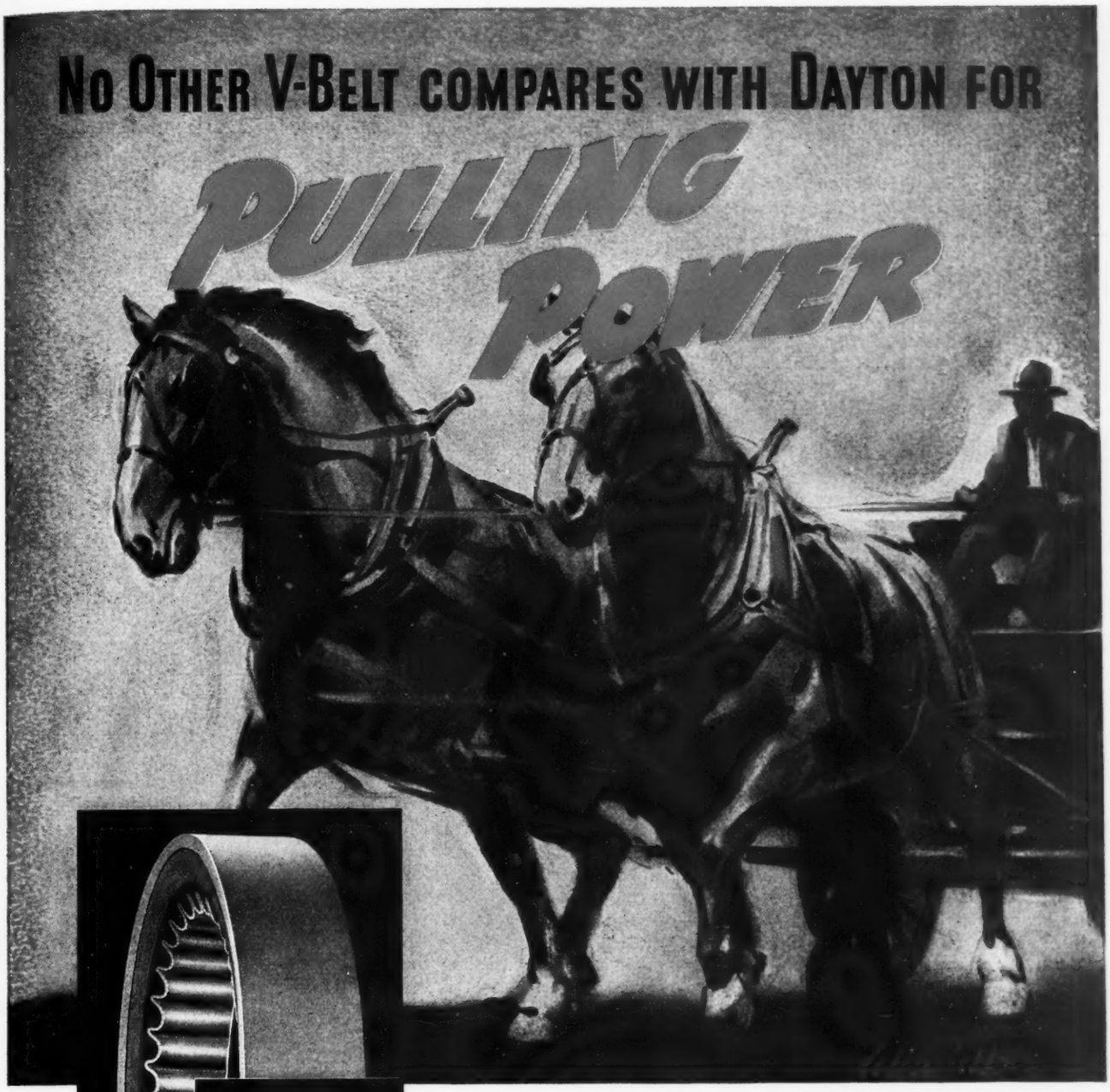

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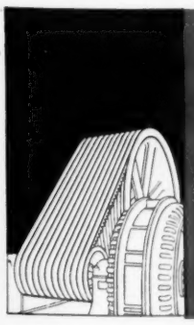

Dayton
COG-BELT DRIVES
MADE BY THE WORLD'S LARGEST MANUFACTURER OF V-BELTS

diminishing importance of the East Texas field in the national drilling picture. The wells in that field, on completion, indicate daily producing abilities ranging from a few barrels to over 10,000 barrels daily, and the average for the field is very high, as compared with the national average. In the early years of the large field's development, as in 1931 and 1932, the area was furnishing large proportions of all United States completions, and for the country as a whole the average initial production per new well was close to 5000 barrels. But in recent years, East Texas has become less dominant in the drilling scene, and in 1937 the East Texas drilling further contracted, furnishing one cause for the decline in average initial production per well.

Explanation of Statistics

The total of 29,014 wells completed in 1937 represents the sum of completions reported to and published in THE OIL WEEKLY each week. The number includes oil wells, gas wells, and unproductive tests drilled for oil or gas. Unlike the Bureau of Mines figures, these statistics of THE OIL WEEKLY do not include wells drilled for the injection of water or gas in oil field oil-lifting operations, as in the water-flooding projects of Pennsylvania.

The above total also does not include various other types of wells, such as core tests drilled in oil exploration, wells drilled in sulphur production, or wells drilled for water, as in oil field rotary drilling or in any other drilling for water supplies.

United States Drilling in 1936 and 1937

Summary and Comparison by Regions and States

(Sources—Compiled from weekly well records published in THE OIL WEEKLY, except California figures, which are from monthly reports of the American Petroleum Institute covering first 11 months, with December estimated by THE OIL WEEKLY)

STATE OR DISTRICT	Completions 1936	Completions 1937	Percent Change	Oil Wells 1936	Oil Wells 1937	Gas Wells 1936	Gas Wells 1937	Dry Holes 1936	Dry Holes 1937	Initial Oil Production, Barrels Daily 1936	Initial Oil Production, Barrels Daily 1937
Arkansas	90	140	+ 55	20	83	4	2	66	55	6,804	50,255
California	1,123	1,470	+ 31	781	1,146	12	16	330	308	360,110	641,873
Colorado	19	19	.....	8	3	2	1	9	15	5,971	2,546
Eastern States	2,959	3,896	+ 29	887	1,305	1,297	1,555	775	1,036	22,447	103,270
Illinois	4	408	.....	.....	258	4	5	.....	145	.....	78,262
Indiana	165	146	— 11	31	47	57	34	77	65	868	571
Kentucky	273	575	+110	179	282	8	119	86	174	10,565	9,153
New York	.....	26	.....	.....	1	.....	15	.....	10	.....	26
Ohio	1,918	1,487	— 22	538	443	862	618	518	426	9,993	10,369
Pennsylvania	.....	283	.....	.....	76	.....	141	.....	66	.....	2,019
West Virginia	599	971	+ 62	139	198	366	623	94	150	1,021	2,870
Kansas	1,722	2,657	+ 54	1,229	1,915	62	128	431	614	1,283,211	2,439,613
Louisiana	994	987	— 0.7	646	622	122	105	226	260	1,259,273	307,389
North Louisiana	556	510	— 9	354	326	112	91	90	93	1,097,261	156,429
South Louisiana	438	477	+ 8	292	296	10	14	136	167	162,012	151,460
Michigan	756	925	+ 22	322	605	200	63	234	257	53,507	249,294
Montana	193	200	+ 4	138	145	20	25	35	30	13,312	12,189
Nebraska	1	.....	.....	.....	.....	.....	.....	1	.....	.....	.....
New Mexico	564	674	+ 19	523	607	15	29	26	38	879,709	791,236
Oklahoma	2,857	2,926	+ 2	2,004	2,066	134	140	719	720	4,091,162	1,945,214
Southeastern States	12	17	+ 42	.....	.....	1	.....	11	17	.....	.....
Alabama	2	2	.....	.....	.....	.....	.....	2	2	.....	.....
Florida	2	1	— 50	.....	.....	.....	.....	2	1	.....	.....
Mississippi	8	14	+ 75	.....	.....	1	.....	7	14	.....	.....
Texas	12,527	14,997	+ 19	9,459	11,529	360	456	2,708	3,012	14,256,756	17,547,804
East Texas Field	2,627	2,466	— 6	2,509	2,380	1	2	117	84	9,627,807	11,808,553
Rest of East Texas	566	1,007	+ 81	435	860	17	37	114	110	695,114	531,759
North Texas	2,179	2,254	+ 3	1,204	1,236	6	27	969	991	163,468	252,994
South Texas	3,321	3,594	+ 8	2,471	2,533	99	143	751	918	1,212,181	1,014,479
Texas Gulf Coast	1,127	1,537	+ 36	816	1,174	35	59	276	304	327,915	516,055
Texas Panhandle	665	838	+ 26	475	655	159	153	31	30	252,613	322,681
West Texas	1,579	2,898	+ 83	1,350	2,525	18	10	211	363	1,962,190	3,088,697
West Central Texas	463	403	— 13	159	166	25	25	239	212	15,468	12,586
Utah	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....
Wyoming	102	105	+ 3	72	65	8	10	22	30	57,273	46,168
Total	23,919	29,014	+ 21.3	16,089	20,091	2,237	2,531	5,593	6,392	22,289,535	24,137,351

There was more drilling in 1937 than in 1936 in nearly all the oil producing states and districts. Exceptions included the East Texas field, West Central Texas, North Louisiana, Ohio, and Indiana, where declines, mostly small, were registered.

The sharpest increases in drilling over 1936 were those of more than 80 percent in West Texas and Eastern Texas outside the East Texas field; and the next largest gains were those of over 50 percent in Arkansas and Kansas, reflecting extension of Rodessa field into Arkansas and development of new fields in Western Kansas. The Texas Gulf Coast and California also showed larger than average expansion of field work, having had over 30 percent more drilling in 1937 than in 1936.

The tables presented herewith show the record of drilling in 1937 by states, counties, and fields.

Wells Drilled in the United States in 1937, by Counties and Fields

Arkansas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Ashley	1	...	..	1	.....
Calhoun	1	...	..	1	.....
Clark	2	...	..	2	.....
Cleveland	3	...	..	3	.....
Columbia	2	1	..	1	397
Dallas	2	...	..	2	.....
Franklin	1	...	1	...	.....
Grant	2	...	..	2	.....
Hempstead	7	...	..	7	.....
Lafayette	3	...	..	3	.....
Little River	2	...	1	1	.....
Miller	58	51	..	7	34,635
Monroe	1	...	..	1	.....
Nevada, Troy	5	4	..	1	683
Nevada, others	15	8	..	7	580
Ouachita:					
Barham	1	...	..	1	.....
Camden	1	...	..	1	.....
Others	2	1	..	1	7
Pike	2	...	..	2	.....
Pope	1	...	..	1	.....
Pulaski	1	...	..	1	.....
St. Francis	1	...	..	1	.....
Sevier	1	...	..	1	.....

(Continued on next column)

Arkansas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Union:					
Hibank	1	1	..	..	15
Schuler	7	7	..	..	9,503
Urbana	4	3	..	1	157
Wildcats	13	7	..	6	4,278
Total, 1937	140	83	2	55	50,255
Total, 1936	90	20	4	66	6,804

California

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Beldridge, North	15	15	....	....	45,153
Beldridge, South	1	1	....	....	130
Canal	1	1	....	...	2,267
Capitan	8	7	....	1	1,985
Coalinga	3	2	....	1	22

(Continued on next column)

California—(Continued)

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Coyote, East	13	9	....	4	1,904
Coyote, West	4	2	....	2	378
Dominguez	16	16	....	....	9,590
Dudley Ridge	1	.....	....	1	.....
Edison	19	11	....	8	1,110
Elk Hills	6	5	....	1	859
El Segundo	55	50	....	5	56,237
Elwood	3	1	....	2	320
Fruitvale	55	39	....	16	10,690
Greeley	14	11	....	3	24,730
Huntington Beach	31	29	....	2	5,009
Inglewood	5	4	....	1	5,788
Kern River	89	72	....	17	21,080
Kettleman Hills, Middle Dome	1	.....	....	1	.....
Kettleman Hills, North Dome	31	29	....	2	38,518
Lawndale	1	.....	....	1	.....
Long Beach	47	26	....	21	5,091
Lost Hills	26	21	....	5	3,310
McDonald Is.	2	.....	2	....	.....
McKittrick	14	9	....	5	785
Midway-Sunset	141	123	....	18	32,615

(Continued on page 150)

Where laws are made—The U. S. Capitol

Harris & Ewing

Legislation

Little legislation dealing specifically with oil expected in 1938, but industry to be affected by general business acts

By B. F. LINZ
Staff Writer

WHAT Congress will enact in the way of legislation affecting the oil industry is a question of major importance, which can be discussed at present only in generalities.

While little or no legislation dealing specificially with petroleum is expected to come up for consideration during the 1938 session, the industry as a whole, and its members individually, will be materially affected by general measures which are on President Roosevelt's legislative program.

Left-Over Bills

Many oil bills were introduced during the last regular session, and are now in the hands of various committees. But in view of the heavy schedules which most of the committees have and the desire to adjourn the session as early as possible next summer, it is not expected that any measure of major importance—one that would be the subject of controversy — will be taken up.

These measures deal with a wide variety of subjects, including the Naval Reserves, oil taxes and tariffs, recovery of the California submerged lands, storage census, and the divorcement of production from marketing.

Of the group, but three or four are seen in Washington as possibly receiving consideration, among them being the following: a bill authorizing the Navy Department to consolidate its holdings in Naval Reserve No. 1, introduced by Senator Walsh (Dem., Mass.) and passed by the Senate April 16, last; a resolution directing the Attorney General to assert title to the submerged oil lands off the California coast, introduced by Senator Nye (Rep., N. Dak.) and passed by the Senate August 19; and legislation providing for periodic surveys of crude in storage, sought by the Interior Department, being among the number.

Bills Now Considered

The tax, anti-trust, and labor bills comprise the legislation in which the oil industry is most interested at this time.

Involved in the tax measure are not only the easing of the undis-

tributed profits tax provisions to give relief to small corporations and the repeal of the present levies on the sale of crude petroleum, the processing or refining of crude, and gasoline recovered from natural gas, recommended to the House Ways and Means Committee by its tax subcommittee, but also the possibilities of reduction in the depletion allowance.

Undivided Profits Tax

The undistributed profits tax has been admitted by the Administration to impose, in its present form, an almost unbearable burden upon small corporations, those with inadequate financing, and those suffering from heavy indebtedness. The subcommittee recommendations provide for the lifting of the tax from corporations with taxable income of less than $25,000, which will be subjected to normal tax rates ranging from 12½ to 16 percent, in lieu of the present 8 to 15 percent, and relief for organizations with intermediate incomes.

Depletion Allowance

The tax group sidestepped the question of depletion, reporting that it did not have sufficient time to go into the subject thoroughly and referring it to the full committee for consideration. In view of this recommendation, it is doubtful whether the Ways and Means Committee will attempt to revise the depletion schedules, when it writes the bill which it will submit to the House. But it is within the committee's province, of course, to go into the subject if it sees fit.

The question of depletion easily is the most important legislative point with which the oil industry is faced. Operators contend that any alteration of the present schedules is bound to affect planning for future investments in exploratory or wildcat work. It is also contended that the depletion allowance is a constitutional right with which Congress cannot interfere, although admittedly Congress can fix depletion rates.

On the other hand, accountants and treasury officials assert that the present 27½ percent depletion allowance is excessive and enables operators to wipe out their investment several times over. This contention is the basis for the Treasury demand for a reduction in or elimination of the allowance. The present depletion provisions, affecting other extractive industries as well as oil, are said by Treasury officials to entail a loss to the government of some $75,000,000 or more a year.

While the tax subcommittee refused to go into the question of either depletion or the community-property provisions, action of course can be taken by the Ways and Means Committee, or, after the bill is passed by the House, the Senate Finance Committee.

Anti-Trust Legislation

Anti-trust legislation, which may contain features of grave importance to the industry, is one of the "must" items on the legislative program for the session. A special message on the subject is shortly to be sent to Congress by President Roosevelt, outlining generally what he desires in the way of modernization of the anti-monopoly statutes.

Attorney General Cummings has

Legislative

Bills first originate in Congress, and must be passed by both the Senate and House.

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strongly recommended that, before Congress embarks upon the enactment of legislation, a thorough investigation of all phases of the monopoly situation be made. If Congress is to pass a bill this season, however, more than a cursory study is impossible.

When the question of anti-trust legislation is brought up, proponents of a number of bills dealing with the oil and other industries will attempt to have their panaceas incorporated in the measure.

Chief among these individual bills are those introduced by Representative Wright Patman (Democrat, Texas) to prohibit a manufacturer from selling at retail, and measures drafted by Senator Guy M. Gillette (Democrat, Iowa) and Representative John J. Dempsey (Democrat, New Mexico) to divorce the marketing of oil products from production, refining and transportation. All three, of course, aim at the same goal.

Hearings were held on the Patman bill in December and January by the House Interstate and Foreign Commerce Committee. Paul E. Hadlick, counsel for the National Oil Marketers Association, made a plea for adoption of the bill, on the ground that the integrated companies were using their retail outlets to provide losses, to be set off, for tax purposes, against their profitable production, refining and transportation operations; thus depriving the Federal Treasury of tax revenues, while at the same time offering unfair competition to the independent distributors.

Also involved in anti-trust consideration will be the Borah-O'Mahoney bill to require the licensing of all corporations engaged in interstate commerce.

If this measure is given serious attention, efforts will be made to incorporate provisions requiring that all products moving in interstate commerce be produced under certain labor standards, possibly including a minimum wage and maximum working week. As now written, however, the bill contains no such requirements and it is not known that either of its authors would favor them, their main idea being to provide a law which would give the government some measure of control over the financing and practices of corporations.

Regardless of what material may go into the anti-trust bill as finally adopted, if the proposals of Administration officials are accepted, a general tightening up of anti-monopoly provisions, affecting the oil industry equally with others, is foreseen.

Wages and Hours

Hoped by its opponents to be dead as a result of the vote of 216 to 198 by which it was sent back to committee by the House in December, the President's demand for enactment of a wage and hour bill has revived the question of labor conditions and some sort of measure undoubtedly will be brought back into the House before the end of the session.

However, the House Labor Com-

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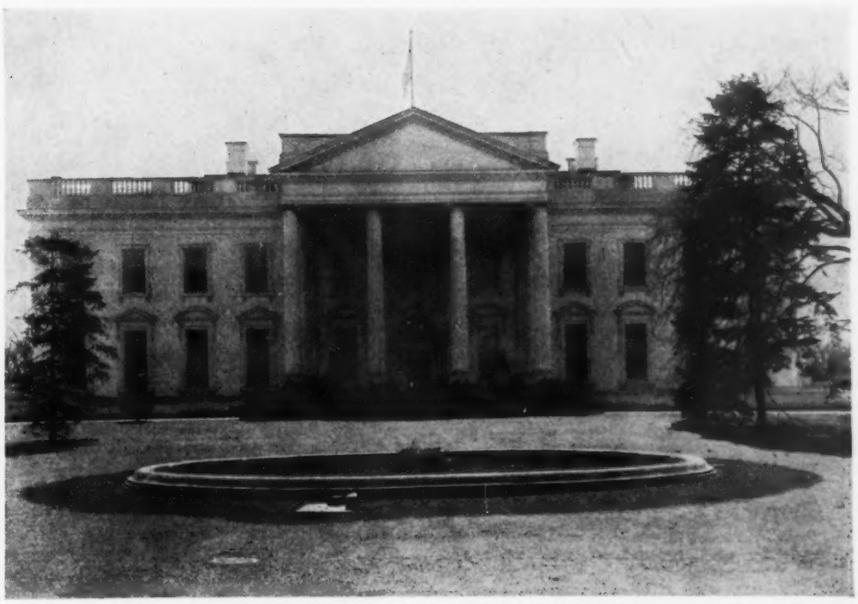
Presidential

Bills passed by Congress are not laws until they go to the White House for the President's signature.



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mittee has agreed to hold off until after February 15, to give the House a chance to dispose of other matters, and while a recent vote in the committee showed a majority feeling that some sort of legislation should be enacted, it is considered likely that the original provisions for a 40-hour week and a 40-cent minimum wage may be laid aside.

Suggestions have been made that the bill be confined to the fixing of a maximum week of 40 hours for general application to industry; leaving the problem of the minimum wage to be worked out by organized labor, supported by the National Labor Relations Act, with individual employers in the various industries.

This, it is contended, would meet the objections of Southern employers to the setting of any minimum wage unless a differential was given the South.

While it is said the proposed standards of 40 cents an hour and a 40-hour week would not affect the producers or refiners of oil materially, the industry has evinced considerable interest in the measure, which undoubtedly would have an effect upon the cost of their supplies, particularly those in lines where longer hours and lower minimum wages than the proposed standards now prevail.

Oil Bills

The few straight oil bills which are seen as having a chance of enactment affect the industry only regionally, as in the case of the Walsh bill for consolidation of the Naval Reserves. Under that bill, the Navy Department would be authorized to exchange lands in Naval Reserve No. 1 for lands in the same reserve which are held by private interests, or to purchase the latter's holdings or acquire them by condemnation, in order that the government lands might be brought into a single block instead of being scattered throughout the reserve among the areas privately controlled.

The Nye resolution for recovery of the California submerged lands would assert the title of the United States to the tidewater oil field off the California coast, the status of which has long been in controversy.

Legislation providing for periodic surveys of stored crude, introduced by Representative Dempsey, is desired by the Interior Department as a means of giving it a check on the situation. The department last year made its first survey of this nature, final results of which have not yet been published. It is held that the government should have continuing current information on the storage situation, to co-relate its other statistical data.

Legislation for reorganization of the Federal Establishment, sought by President Roosevelt, a feature of which would be the conversion of the Interior Department into a "Department of Conservation," is not seen as having any material effect upon the oil industry.

The proposed Department of Conservation would take over all of the natural resources work of the government, some of which, such as forestry, now is under the control of other agencies. However, the secretary of the new department would not be given any powers which are not now vested in the Secretary of the Interior, and the change of name would not mean the assumption of federal control of the oil industry.

There is considerable opposition in Congress to giving the President the broad powers of shifting agencies from one jurisdiction to another almost without limit, and there is some doubt whether the bill will pass.

With the Connally contraband oil act and the interstate compact extended last year to January 16, 1939, it will not be necessary for Congress again to consider that question this session. However, it is one of the matters which must come up in 1939 if the present control of "hot" oil is to be maintained. If the oil industry continues to keep its house in order, it is not believed there will be any suggestion of more stringent control than is now exercised, a control which Secretary of the Interior Ickes, ardent advocate of federal regulation, has admitted is highly satisfactory.

Judicial

Even after Congress and the President agree upon a bill, the U. S. Supreme Court can rule it unconstitutional.

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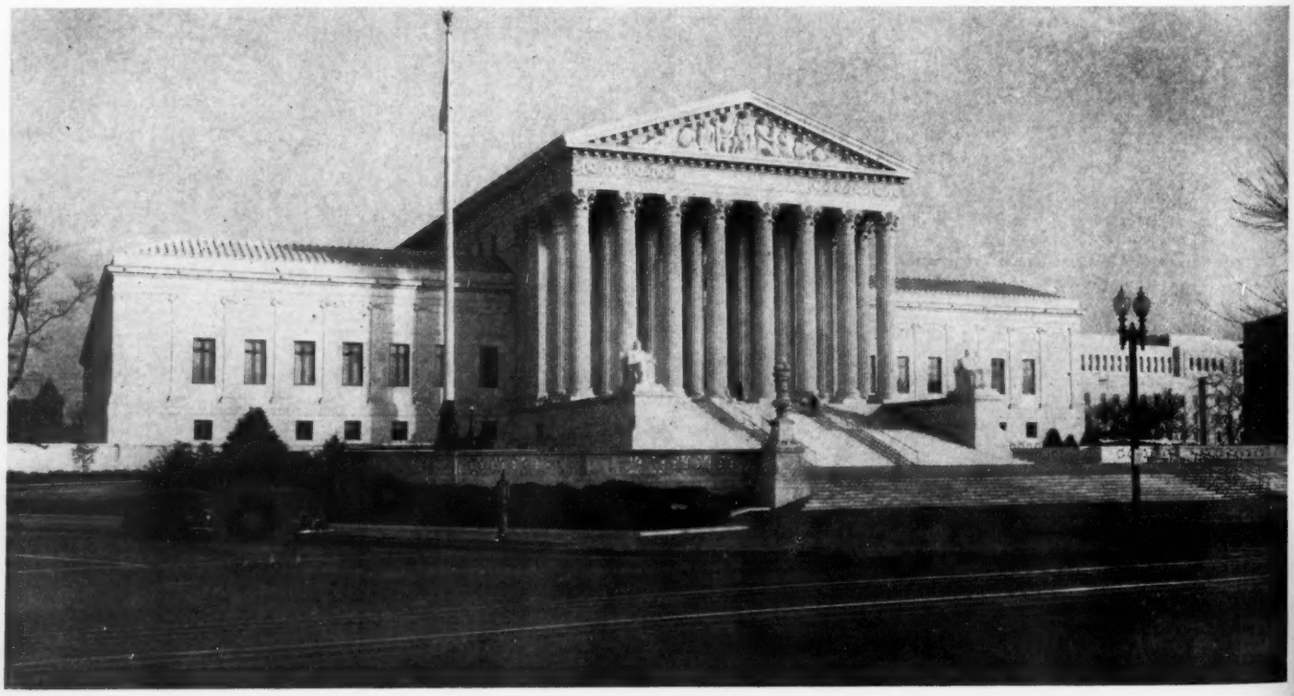

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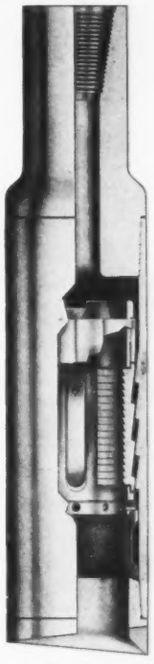

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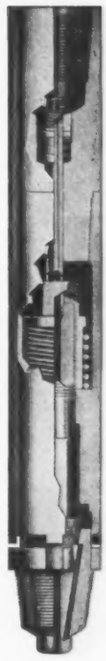

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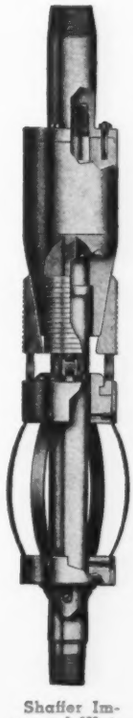

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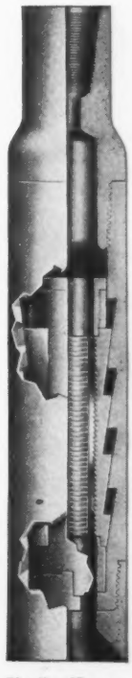
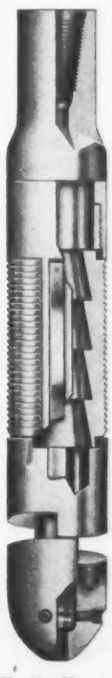


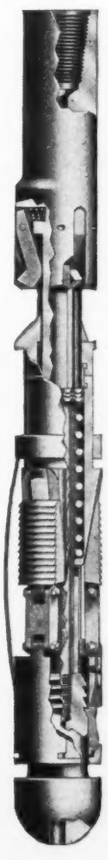
Shaffer-Hamon Rotary Releasing Socket.



Shaffer-Hamon Rotary Releasing Spear.

Shaffer Liner Hanger

Shaffer Double Bowl Rotary Releasing Socket.



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Natural Gas

Further growth of natural gas use expected, following setting of new record of consumption in past year

By L. J. LOGAN
Associate Editor

FURTHER increases in consumption and production of natural gas appear in prospect for 1938, following the setting of new records in 1937.

This promising outlook for the natural gas industry of the United States is based in part on indications of a particularly active year in the building and construction industries and also in part on the stable nature of the demand for natural gas, which has become a virtual necessity among millions of consumers.

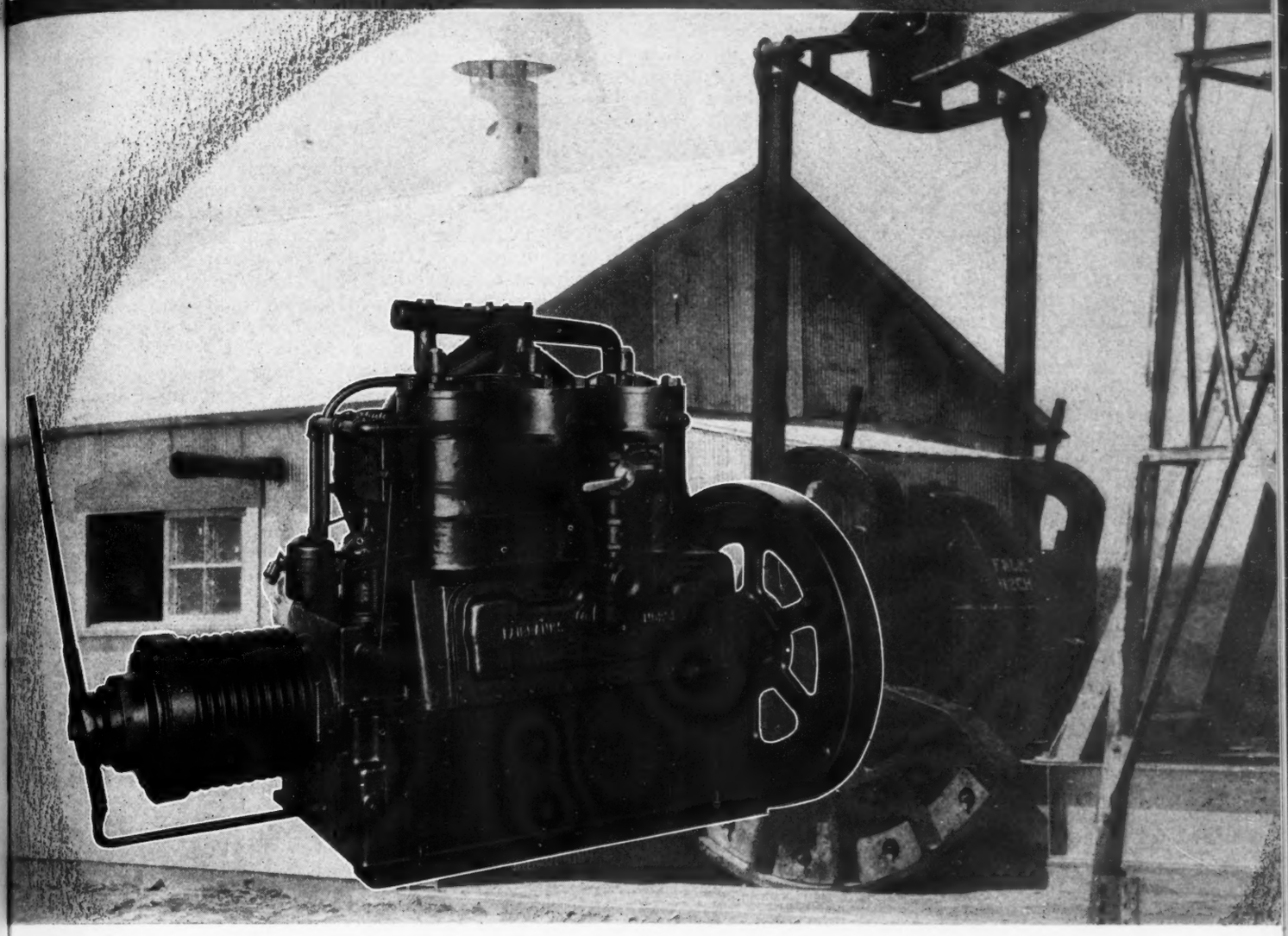
Gas Business Promoted

It is indicated that during 1938 building and construction will reach the largest proportions for many recent years. And the natural gas industry is aggressively bidding for a share of business in the new home field, as evidenced by the formation of a Home Appliance Planning Bureau.

In that connection, the American Gas Association, in conjunction with the utility and appliance manufacturing companies, will launch a complete program including an

Despite the over-powering competition for your interest here, an underline is customary. And so — Natural gas serves as a highly desirable fuel, not only for frying eggs, but also for running a refrigerator, operating a water heater, heating a home, generating power, keeping a factory going, or drying the ink on a printed page such as this one.

CONTINENTAL · FAIRBANKS-MORSE



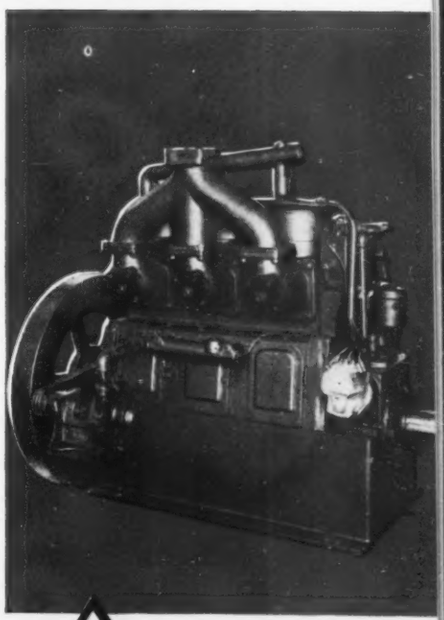
Model 34 Oil Well PUMPING ENGINE

It is a Continental-Fairbanks-Morse policy to offer equipment to the oil industry especially fitted to its purpose. In keeping with this policy, Continental offers a new Fairbanks-Morse product, the Model 34, 3-cylinder, 2-cycle engine, *especially designed for oil well pumping.*

Three-cylinder design provides inherent balance, while a rigid base and a minimum overhung drive combine to afford smooth, vibrationless operation. An extra-heavy flywheel reduces peak cylinder pressures and makes it possible to start the well without rocking . . . all evidence that this engine has been suited to the unique character of oilwell loads.

A refined oiling system assures 24-hour dependability so necessary in pumping service. With the reliability and simplicity of 2-cycle design, the Model 34 is constructed to give long, faithful service under the most adverse conditions.

See your Continental representative today or write for complete details.



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General Offices: DALLAS, TEXAS

Export Office: CONTINENTAL EMSCO CO., Inc.
30 Rockefeller Plaza New York City, N. Y.

Representatives:
LONDON MARACAIBO PLOESTI BUENOS AIRES

SERVING THE OIL AND GAS INDUSTRIES

CONTINENTAL

architectural competition for design of all-gas homes and a builders' contest for the construction of such homes.

Gas Use Growing

To forecast further gains in consumption and production of natural gas for 1938 is only to project forward the normal trends. For like gasoline demand, the consumption of natural gas normally is growing. Reference to an accompanying table shows that the natural gas consumption has been growing consistently throughout this century, except in a few years, including some years of the recent major depression. However, the industry has resumed the upward trend, and by 1936 consumption was greater than in 1929 and 1930, while the demand went on to a new all-time peak in 1937.

Production at Peak

Preliminary estimates indicate that the total production of natural gas in 1937, including amounts used in the manufacture of carbon black and for field purposes, reached an all-time high of over 2½ trillion cubic feet, or about 17 percent more than the previous peak established in 1936.

Approximately 170 billion cubic feet of natural gas were used as fuel for generating electric power in 1937, an increase of nearly 9 percent over the previous year's use.

Texas in 1937 remained firmly entrenched in the No. 1 position among natural gas producing states, accounting for about 35 percent of all United States output. Louisiana rose into second place, surpassing two other states, including Oklahoma, which was left in third place and California in fourth. Those four leading states now yield about 80 percent of the national production of natural gas. Details of production, by states, by years, are embodied in an accompanying table.

Record Number of Users

Over 40 percent of the consumers of gas are using natural gas. The natural gas and manufactured gas companies, supplying towns and cities with combined population of 80,000,000 persons, served a total of 17,022,000 customers in 1937, the largest number of consumers ever connected to the gas mains, and an increase of 517,000 over the previous year. Of those customers, 7,046,000 were served by the natural gas industry and the remaining 9,976,000 by the manufactured gas industry.

Revenues of the whole industry, natural and manufactured gas, aggregated $801,931,000 in 1937, an increase of 4.1 percent over 1936. The natural gas companies grossed $441,176,000, a gain of 6.9 percent for the year, while revenues of the manufactured gas companies totaled $360,755,000, or 0.9 percent more than in 1936.

Sales of natural gas for domestic uses showed a pronounced upturn, rising from 343,473,000,000 cubic feet in 1936 to 362,021,000,000 cubic feet in 1937, an increase of 5.4 percent.

Sales of both natural and manufactured gas for industrial and commercial purposes in 1937 averaged about 10 percent more than in the previous year.

Range Sales Up

During 1936 alone 1,464,000 gas ranges were sold, more than equal to the entire number of electric ranges in use at that time. Preliminary estimates for 1937 indicate sales of nearly 1,600,000 gas ranges,

Production of Natural Gas in the United States Rises to New Peak in 1937 in Response to Growing Demand

This table shows natural gas produced in the United States and delivered to consumers, by states, by years, since 1905. It is based on figures of the U. S. Geological Survey and the U. S. Bureau of Mines.

(Millions of Cubic Feet)

YEAR	Arkansas	California	Illinois	Indiana	Kansas	Kentucky	Louisiana	Montana	New York	Ohio	Oklahoma	Pennsylvania	Texas	West Virginia	Wyoming	Others	Total
1906.....	[a]	153	410	7,861	69,323	789	[b] 1,039	.....	2,548	45,436	3,520	138,161	[b]	119,400	[a]	203	388,843
1907.....	[a]	230	1,155	6,624	76,707	1,303	[b] 1,288	.....	3,288	52,041	4,867	135,516	[b]	122,687	[a]	916	406,622
1908.....	[a]	479	4,979	5,256	80,740	1,430	[b] 1,752	.....	3,843	47,442	11,925	130,476	[b]	112,181	[a]	1,638	402,141
1909.....	[a]	2,324	8,473	6,159	75,074	2,097	[b] 4,365	.....	4,696	53,223	28,037	127,697	[b]	166,435	[a]	2,126	480,706
1910.....	[a]	2,764	6,723	5,760	59,380	1,357	[b] 8,110	.....	6,010	48,232	50,430	126,867	[b]	190,706	[a]	2,816	509,155
1911.....	[a]	6,390	6,762	4,365	38,800	1,275	[c] 9,786	.....	5,240	49,450	67,276	108,869	5,503	206,891	[a]	2,386	512,993
1912.....	[a]	9,355	5,603	3,618	28,068	1,951	[c] 14,493	.....	8,626	56,210	73,799	112,150	7,470	239,007	[a]	1,853	562,203
1913.....	[a]	11,035	4,767	2,921	22,884	1,821	[c] 26,653	.....	8,515	50,612	75,018	118,860	12,160	245,454	[a]	1,198	581,898
1914.....	[a]	17,829	3,548	2,580	22,628	1,422	[c] 26,775	.....	8,935	68,270	78,167	110,745	13,434	236,489	[a]	1,045	591,867
1915.....	[d] 992	21,891	2,690	2,261	27,046	1,667	25,540	6	7,977	79,510	87,517	113,692	13,324	244,004	[a]	462	628,579
1916.....	2,388	31,643	3,534	1,715	31,710	2,107	32,081	213	8,036	69,888	123,517	130,484	15,810	299,319	[a]	725	753,170
1917.....	5,610	49,427	4,439	1,712	24,439	2,802	31,287	334	8,372	68,917	137,384	133,397	17,047	308,617	[a]	1,326	795,110
1918.....	5,295	39,719	4,473	1,667	27,825	3,022	36,094	177	8,461	61,261	124,317	123,813	13,440	265,161	4,339	1,937	721,001
1919.....	5,587	55,607	3,825	1,407	16,150	2,057	47,062	858	8,124	63,153	163,649	113,489	24,710	234,095	6,014	129	745,916
1920.....	9,027	66,041	3,013	1,779	21,158	3,345	58,274	818	8,419	58,938	154,467	125,787	37,063	239,719	10,312	50	798,210
1921.....	4,260	75,942	2,646	1,066	15,717	4,820	58,004	336	6,583	47,412	124,058	86,144	44,504	174,921	15,608	31	662,052
1922.....	9,700	84,580	3,383	947	20,289	5,872	70,267	486	6,947	51,481	140,631	101,276	47,945	195,288	23,427	27	762,546
1923.....	24,215	131,434	4,049	880	30,913	11,953	112,031	1,470	6,497	53,812	203,082	112,562	74,535	203,867	35,523	153	1,006,976
1924.....	36,616	189,692	4,072	998	25,580	12,875	160,945	1,071	6,196	47,396	214,452	105,863	107,247	182,285	46,036	197	1,141,521
1925.....	41,878	187,789	4,165	1,168	26,917	10,770	152,620	1,496	6,210	42,235	249,285	101,632	134,872	180,345	45,539	650	1,188,571
1926.....	43,566	204,915	3,808	901	38,095	10,410	157,423	2,283	7,027	47,363	286,421	107,089	175,392	180,223	46,567	1,536	1,313,019
1927.....	30,450	212,364	3,741	1,124	42,646	10,206	186,961	4,253	5,908	51,381	326,864	105,709	254,063	162,375	43,582	3,801	1,445,428
1928.....	20,235	246,215	3,051	1,290	45,644	15,383	227,821	6,277	7,224	56,341	320,861	99,466	301,990	163,018	47,490	5,833	1,568,139
1929.....	19,928	342,214	2,983	1,012	38,469	27,588	261,138	9,659	8,387	57,936	357,983	101,951	464,928	167,333	44,648	11,626	1,917,693
1930.....	18,585	334,789	2,890	1,217	37,630	28,023	278,341	10,060	9,624	63,394	348,116	88,706	517,880	144,180	43,219	16,767	1,943,421
1931.....	13,300	305,930	2,130	1,337	38,742	27,870	224,155	10,949	7,868	56,326	263,685	74,797	464,580	124,797	39,770	30,200	1,686,436
1932.....	10,235	263,484	1,769	1,349	40,690	29,005	201,561	13,295	8,813	51,466	255,487	61,611	456,832	100,540	28,938	30,915	1,555,990
1933.....	8,288	259,799	1,631	1,544	41,596	31,380	197,826	14,391	6,865	47,929	245,759	63,579	475,691	100,653	25,830	32,713	1,555,474
1934.....	7,024	268,122	1,868	1,802	46,909	33,124	225,713	14,971	6,278	50,330	254,457	86,238	602,976	109,161	23,148	38,600	1,770,721
1935.....	6,167	284,109	1,448	1,777	57,125	39,738	249,450	19,870	8,288	49,592	274,313	94,464	642,366	115,772	26,643	45,473	1,916,595
1936*....	5,583	[f]325,000	1,549	1,955	62,551	42,520	[f]293,000	23,645	9,117	50,551	[f]305,000	103,910	[f]725,000	[f]130,000	31,705	54,478	2,165,564
1937*....	5,192	338,000	1,797	2,151	96,329	49,323	402,940	27,191	10,028	55,606	353,040	114,301	891,750	140,084	36,461	64,279	2,588,472

[a] Included with "Others." [b] Alabama and Texas included with Louisiana. [c] Includes Alabama. [d] Includes gas piped from Oklahoma and consumed in Arkansas. * Estimated by The OIL WEEKLY, except as otherwise indicated. [f] Preliminary figure of the Bureau of Mines.

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THE KNOWLEDGE OF THE TIMES

to

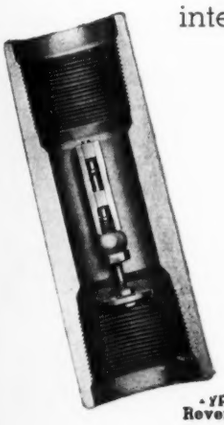
THE NEEDS OF THE TIMES

GAS LIFT... *The Most Natural of the Artificial Means of Producing Oil*

Production and Engineering heads are invited to inquire as to the service we render. Our accumulation of data and the facilities of our SERVICE ORGANIZATION are available to any concern interested in efficient and less expensive production methods.

BRYAN FLOW VALVES

For more complete information see COMPOSITE CATALOG pages 676-677



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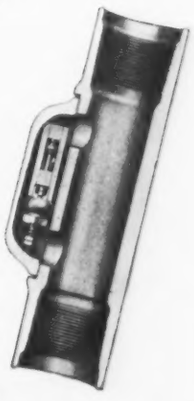
BRYAN VALVES
DALLAS



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Los Angeles

Houston, Texas
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Beeville, Texas
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Midland, Texas
Phone 736
Atlanta, Texas
Phone 6

Large Part of Carbon Black Goes into Making of Automobile Tires

This table, showing use of carbon black, made from natural gas, is based on data for 1936 in "Minerals Yearbook, 1937."

INDUSTRY	Consumption (Thousands of Pounds)	Percentage of Total Consumption
Rubber Companies.	278,018	59 4
Ink Companies....	17,787	3.8
Paint Companies...	6,914	1.5
Miscellaneous users.	10,299	2.2
Total domestic...	313,018	66.9
Exports.....	154,718	33.1
Total.....	467,736	100.0

a gain of 10 percent, and a figure equaling the previous peak established in 1929. More cooking is done on a satisfactory new range than on an out-of-date and inconvenient old range. Modern ranges require considerably less gas for the same cooking operations, and consequently there is some question whether any increase in the consumption of gas for cooking will result. However, the availability of these more efficient ranges strengthens materially the competitive position of the industry as regards its basic cooking load.

Gas For Heating

Many gas companies have recently inaugurated more favorable rates for house heating through central plant burners and equipment. It is estimated that the total number of gas central house heating installations connected to the lines of all United States gas companies in 1937 amounted to 735,000. In addition there were approximately 1,300,000 dwellings heated by unit heaters, space heaters, floor furnaces, and so forth, giving a total of more than 2,000,000 homes in the United States that are heated by gas.

Water Heaters

The past year and a half has been characterized by an increasing appreciation of the great potential market for domestic water heating. There has been a widespread adoption of rates more favorable to the use of gas for this purpose. This has been accompanied by a marked acceleration of local sales efforts and a nationwide coordinated campaign to promote the use of gas for water heating. So successful have been the results of this program that it will be continued during 1938. For instance, the sale of automatic type gas water heaters during 1937 is expected to average more than 20 percent above 1936.

Progress in Equipment

In recent years, the gas industry has supplemented the substantial amount of research conducted by gas appliance manufacturers by a vigorous and well-planned program of research and development through the American Gas Association. Even better and more efficient gas equipment will shortly be available, which should serve to enhance the competitive position of gas. Gas is also receiving increased recognition in the air-conditioning field, where control of humidity as well as temperature is required.

Natural Gasoline Production Increases with Processing of More Natural Gas

This table is based on U. S. Bureau of Mines figures

YEAR	Number of Natural Gasoline Plants	Natural Gas Processed (Millions of Cubic Feet)	Natural Gasoline Production (Thousands of Gallons)	Average Yield of Gasoline per 1,000 Cubic Feet of Gas Processed (Gallons)
1911...	176	2,476	7,426	3.000
1912...	250	332	12,081	2.577
1913...	341	9,889	24,061	2.433
1914...	386	16,895	42,653	2.525
1915...	414	24,064	65,365	2.716
1916...	596	208,705	103,493	0.496
1917...	886	429,288	217,884	0.508
1918...	1,004	449,109	282,536	0.629
1919...	1,191	480,404	351,535	0.732
1920...	1,154	496,431	384,744	0.775
1921...	1,056	479,618	449,934	0.938
1922...	917	545,139	505,832	0.928
1923...	1,067	875,711	816,226	0.932
1924...	1,096	1,016,276	933,861	0.919
1925...	1,080	1,040,369	1,127,437	1.084
1926...	1,101	1,206,275	1,363,057	1.130
1927...	1,118	1,341,233	1,641,125	1.224
1928...	1,077	1,473,414	1,814,008	1.231
1929...	1,086	1,959,267	2,233,653	1.140
1930...	1,034	2,088,748	2,210,455	1.058
1931...	936	1,790,094	1,831,886	1.023
1932...	829	1,499,737	1,523,775	1.016
1933...	778	1,551,444	1,419,975	0.915
1934...	766	1,776,172	1,535,360	0.864
1935...	715	1,822,000	1,651,986	0.910
1936 ..	*	*	1,765,722	*
1937...	*	*	†2,043,000	*

* Data not available.
† Figures estimated by THE OIL WEEKLY.

Use In Business

The use of gas for commercial and industrial purposes throughout the country is growing rapidly in volume. New outlets are presenting themselves in this branch of the industry. Recent marked changes in materials which go into dwelling structures calling for more use of structural steel, glass, brick, synthetic stone, metalized wood, fabricated steel, and concrete in home construction are resulting in a correspondingly greater demand for use of gas in the production of these products.

In the field of industrial utilization new processes have been developed and equipment with improved efficiencies have come into general use. For example, a few years ago there was a distinct trend in the larger nawspaper offices of the country toward metal melting by electricity for stereotyping and other purposes. Through the American Gas Association's cooperative research with manufacturers, methods have been developed resulting in general acceptance of gas heat for these purposes by the newspaper industry.

Promotion Work

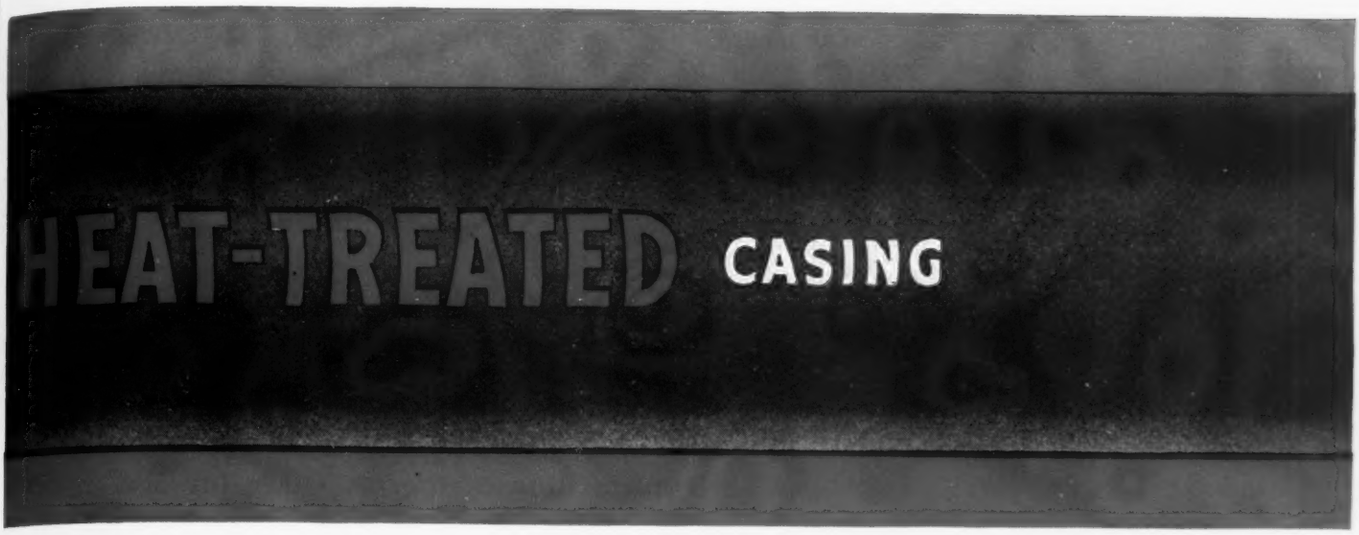
Starting with the July, 1937, issues of ten national magazines and twenty-three trade magazines, the gas industry entered the second of its three-year $1,500,000 national advertising program. Advertising messages appearing in two colors during the year numbered in excess of 100,000,000.

The purpose of this cooperative movement, supported by more than 700 operating companies, is the promotion of gas as a modern fuel for domestic, commercial and industrial purposes. A notable development during the past year was the increased volume of advertising placed by manufacturers of gas appliances, all of it tying in and adding weight to the national program. Radio programs also are being employed.

Natural Gas Is Used Extensively for Heating Homes and for Heat and Power Production in Factories

This table, showing United States consumption of natural gas, by types of use, in 1935 was compiled from information in "Petroleum Facts and Figures."

USE	Millions of Cubic Feet Consumed
Domestic and Commercial:	
Quantity consumed (8,004,000 consumers, indicated in preceding year).....	458,000
Industrial:	
Field (drilling, pumping, operation of gasoline plants, etc.)...	640,000
Manufacture of Carbon Black...	283,421
Petroleum Refineries.....	80,000
Public Utility Electric Power Plants.....	156,080
Portland Cement Plants.....	36,923
Other Industrial Consumption...	513,244
Total Industrial Consumption.	1,709,668
Grand Total, All Uses.....	2,167,668



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5 Uniform Wall Thickness

6 Uniform Hardness

7 Alloy Steel

8 Perfect Threads

9 Uniform Couplings

10 Full Weldability

11 High Collapse Values

12 Deeper Suggested Setting Depths

Taxation

Assessments against petroleum rise in 1937, but 1938 is expected to see the continuation of the tax curve upward

By MAURICE WYSS

WHILE the petroleum industry rightfully is proud of a year which saw new records established in practically every phase of its many-faceted operations, and with a reasonable degree of orderliness, it has good reason to feel seriously concerned about the increasing load of taxes that is being imposed upon its operations and the sale of its products.

While final tax collections for 1937 are not now available, sufficient data are at hand to definitely show an increase over 1936. Moreover, there are prospects for higher taxes in 1938, as several states are certain to make attempts to hike gasoline taxes, while others may levy new assessments or increase present ones. Foremost among the tax problems confronting the industry is the possibility that Congress may eliminate or at least reduce the 27½ percent depletion allowance now granted. This would increase the burden of the oil industry tremendously, and would be particularly hard upon the small independent operator. Congress in looking for new tax money is expected to cast its eye upon the depletion allowance in its present session.

Meanwhile the tax per barrel of crude oil produced already is equal to the price of a barrel of oil at the well.

Taxes levied upon the production of crude oil lately have been assuming increasingly important proportions in the picture of petroleum taxation. While it is popularly supposed that so-called severance taxes are the only taxes levied on the production of crude oil, the fact is that this levy is only one of many borne by the producers of this natural resource.

Texas Taxes High

To illustrate this point, conditions now prevailing in Texas—more or less typical of other oil-producing states—may be cited. The gross production tax or severance tax in that state is 2¾ percent of the sales value of the crude oil, and on the basis of 1937 prices cost producers approximately 3.3 cents per barrel.

In the mind of the public this figure stands out as the only tax paid by the producer on his crude. As a matter of fact, however, other state and county taxes bring this figure up to 8.5 cents per barrel. Included in this are various state taxes, such as the gross receipts tax, the regulatory tax, the franchise tax, etc., and the ad valorem tax paid to counties. This last tax alone now averages 4.6 cents per barrel.

In certain counties of Texas where ad valorem taxes are higher, producers labor under an even greater tax handicap. Recent studies have disclosed that the total direct tax per barrel of crude in 45 counties averaged 10.9 cents, while in 20 counties of the state it ranged from 11 to 14.7 cents. "Double taxation" has been decried as an undesirable thing by no less an august body than a congressional committee. Oil producers, however, are subjected not only to double but to multiple taxation, since their product is levied upon by the state, the counties, school districts, and other political subdivisions.

To the oil-producing states tax revenue flowing from crude production has long been a rich bonanza. In Texas, it is estimated, producers pay 42.9 percent of the total state and local tax bill. Crude oil taxes in 1937 will cost Texas producers some $13,000,000 more than in 1935, a gain in revenue for the state and counties of nearly 50 percent.

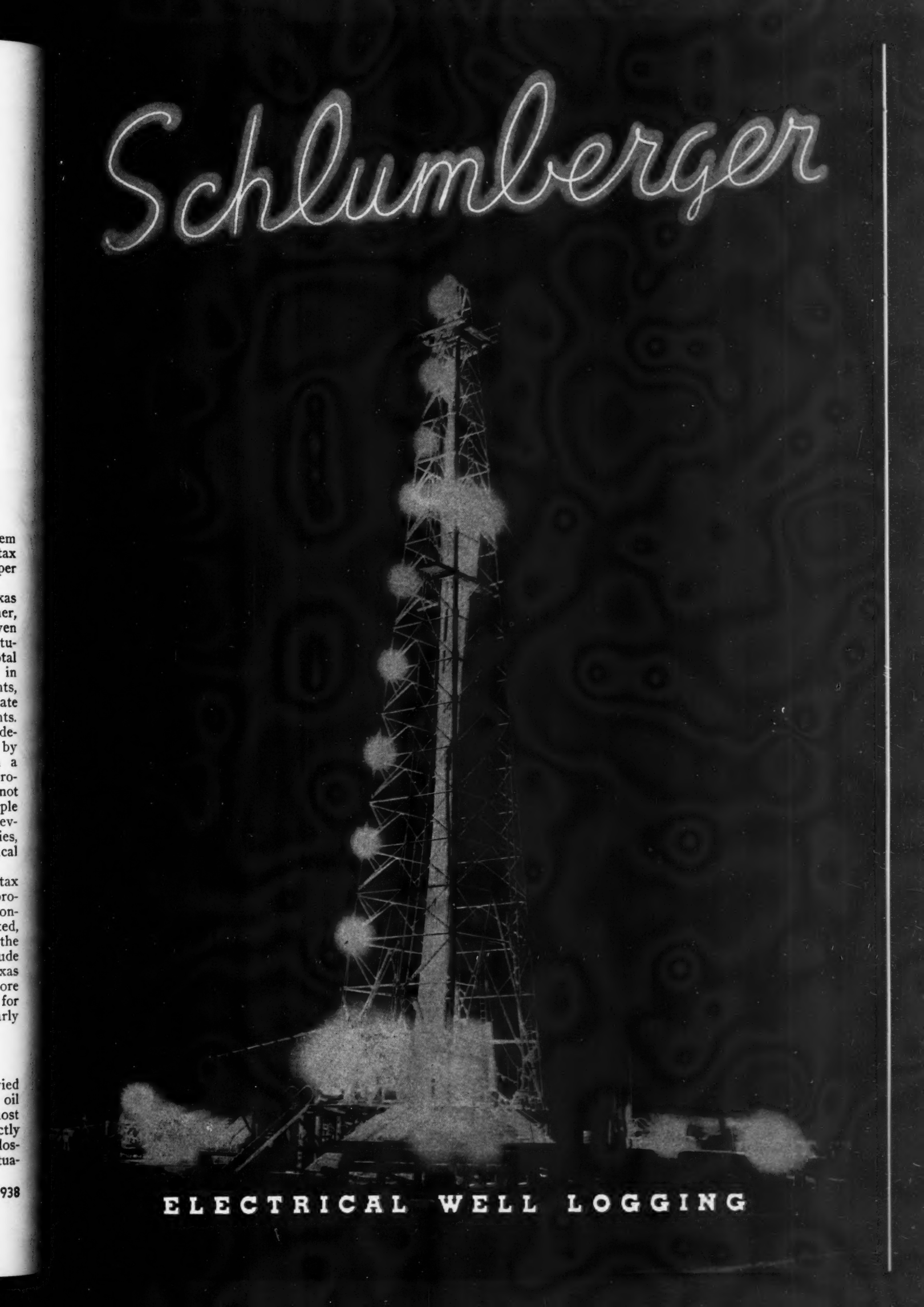
Producers Pay More

Estimated Collections Petroleum Production and Severance Taxes
(1936)

State	Amount
Arkansas	$ 218,594
California	379,980
Kansas	171,293
Kentucky	28,125
Louisiana	3,115,483
Michigan	90,000
Montana	75,598
Ohio	281,400
Oklahoma	11,000,000
Texas	9,000,000
Total	$24,360,473

Gasoline Taxes Raised

While on the surface taxes levied upon the production of crude oil seem to be the producer's most pressing problem—because directly they affect his pocketbook—a closer study of the petroleum tax situa-


Schlumberger
ELECTRICAL WELL LOGGING

tion reveals that sales taxes on gasoline constitute an even greater menace to the welfare of his business. This contention becomes self-evident when it is considered that crude oil as such is not a marketable commodity.

The producer depends upon the refiner as an outlet for his crude. The refiner, on the other hand, must limit his purchases of crude to the demand for petroleum products. This demand consists of orders he receives from his marketers. Thus it goes without saying that anything which adversely affects the business of petroleum marketers cannot help but result in bad business for the refiner and producer of crude oil.

Among petroleum marketers it has long been a truism that excessive gasoline taxes tend seriously to depress consumption. Recent events have confirmed this, and certain government data that have lately become available have done much to clarify the underlying cause of this phenomenon.

Taxes Are Raised

During 1937 four states increased their gasoline tax rates by one cent per gallon. A subsequent study revealed gasoline consumption in these states to be lagging behind those of states that had not increased their rates. This has meant curtailed sales for marketers, refiners, and producers alike.

As to the direct cause of depressed gasoline sales following in the wake of gasoline tax increases it was found recently that the "typical" motorist is a citizen whose income ranges from $20 to $30 per week. He drives a car worth from $50 to $200 and his annual motor tax bill amounts to $50 with gasoline taxes making up more than $30 of that total.

Obviously these typical motorists—comprising by far the largest single customer group for petroleum products—have to count the pennies when motoring expenditures are concerned. Therefore, whenever taxes add to their motoring costs, they must curtail somewhere along the line to bring the budget into balance. The simplest way to accomplish that is to use their cars less, to buy cheaper fuel, or to buy less fuel. In any event, the result is bad for business.

Price Lower — Tax Higher

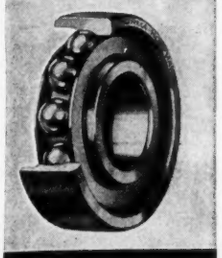
Thus the tax collector has become the most menacing competitor of the petroleum marketer for the motorist's dollar. Just how serious this competition is, and how rapidly it has developed during the past decade, is indicated by statistics. The average gasoline tax for the United States as a whole today is nearly 5.5 cents per gallon, a sales tax of about 38 percent. Ten years ago the average tax was only 2.8 cents per gallon, which added approximately 15 percent to the cost of motor fuel.

The nation's total gasoline tax bill—state and federal—for 1937 will closely approach the $970,000,000 mark. In 1927 state gasoline taxes — the federal tax was not in existence then—cost U. S. motorists only $258,839,000. This means that in one decade tax competition has taken away from petroleum marketers, refiners, and producers, nearly $750,000,000 worth of potential motorist-purchasing power.

During the same period direct petroleum taxes—i.e., taxes levied upon the operations of petroleum marketers, transporters, refiners, and producers—have approximately doubled. While this is serious enough it does not nearly threaten the economic welfare of the entire industry as does ever-widening tax competition.

Petroleum Taxes Amount to $1.08 Per Barrel — The Present Price of Crude Oil

PRECISION BEARINGS



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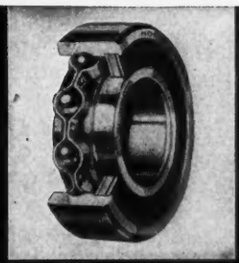
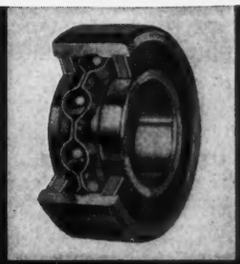
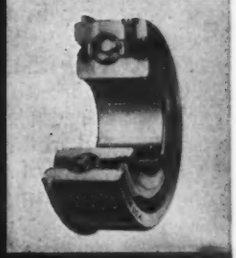


Single Felt Seal Ball Bearing

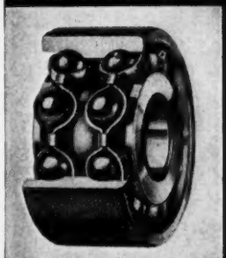


Double Felt Seal Ball Bearing

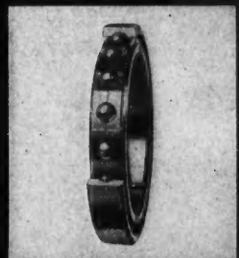
9000 Series (Feltless) Sealed Ball Bearing



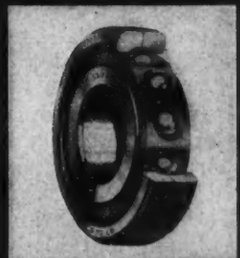
Cartridge Fully Sealed, Refillable Type Ball Bearing



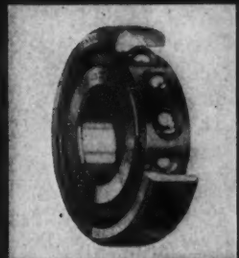
Double Row Ball Bearing



Extra Light Type Ball Bearing

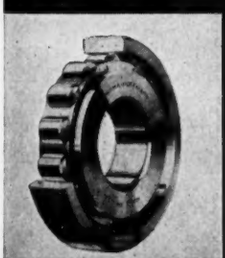


Duplex Type (Two Direction) Angular Contact Ball Bearing

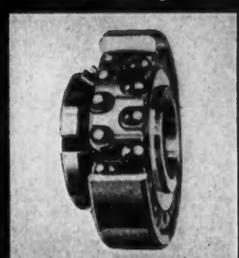


Angular Contact Ball Bearing

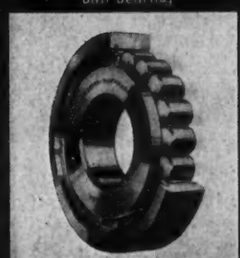
Single Direction Ball Thrust Bearing



Standard Cylindrical Roller Bearing



Double Row Self-Aligning Adapter Ball Bearing



Full Type (Retainerless) Cylindrical Roller Bearing

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Pipe Line Work

Construction activity in 1938 may exceed that of 1937 should several of the large projects now contemplated materialize

WHILE 1937 proved a fairly active pipe line construction year, there are strong possibilities that 1938 will eclipse it if several lengthy proposed systems materialize.

Some recent developments presage that gasoline pipe line construction may be speeded up greatly during the year. Proposals have been made to increase freight rates 15 percent, which immediately started refiners figuring on the possibility of laying gasoline lines to consuming centers. Four Oklahoma refiners have under consideration at this time a proposal to build a jointly owned 650-mile gasoline line from the southern part of the state to central Iowa. Such a line probably would cost $12,000,000. Also being considered is a natural gasoline line from the Texas Panhandle to West Texas. Many other lines are apt to materialize if freight rates are advanced.

Last year saw the completion of some important gasoline carriers. Keystone Pipe Line Company spent an estimated $1,700,000 in extending its system from Williamsport, Pa., to Buffalo and Rochester, New York. This was a distance of 220 miles. Under way at the present time is a 250-mile line from Roxana (or Wood River), Illinois, to Indianapolis, Ind., by Shell Petroleum Corporation. This line may be extended to Toledo, Ohio. There were a number of shorter lines laid.

At present there are several proposals to extend natural gas lines to important consuming centers, but none of the plans are well along. However, such work is believed certain, the amount of it depending upon the length of the jobs that materialize.

Oil pipe line construction appears to be fairly dormant with the exception of the laying of gathering systems and connections to trunk lines from newly discovered fields. However, in the aggregate these short lines will comprise a great deal of mileage.

West Texas to Be Busy

Pipe line construction in West Texas the past year involved mostly short projects made necessary by the spread of development, but this region is destined to occupy a prominent position during 1938 because of scheduled exploitation of comparatively new fields and continued active work in older areas. The north portion of the Permian Basin will likely attract new truck line outlets to supplement the facilities of Humble Pipe Line Company, which was connected with the Wasson and Bennett fields by an extension laid from Hobbs, New Mexico, the past year.

The Texas-New Mexico Pipe Line Company is credited with contemplating the construction of about 136 miles of trunk line, providing adequate production is made available under proration restrictions imposed upon the north portion of the basin region. The proposed line would extend north from Crane station in Crane County through Ector, Andrews, Gaines and Yoakum, then terminate in the Slaughter field, southwestern Hockley County.

Enlargement of trunk lines through installation of loops and added station equipment will be forced upon the majority of the Permian Basin crude carriers should production be raised above the peak level attained last August. Multiple systems operated by Shell Pipe Line Corporation and Humble Pipe Line Company, and single lines held by Gulf Refining Company, pipe line division, and The Texas-New Mexico Pipe Line Company are the most likely to be enlarged.

Construction of a direct line from the Permian Basin to California has been seriously considered by Consolidated Oil Corporation and associates in the past. Such a project would likely materialize in the event the war situation in the Orient involves more large countries.

Outstanding in 1937 construction in West Texas as reestablishment of The Texas-New Mexico Pipe Line Company, and enlargement of all its original main line stations, plus the addition of about 40 miles of 12-inch loops, parallel to 10-inch line, from the New Mexico line to Crane station.

Phillips Petroleum Company is a prospective builder of a combination crude and natural gasoline

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pipe line from southeastern New Mexico and West Texas to Borger, Texas, where the company has the largest interior refinery in the state. This plant and nearby gasoline plants supports the company's 8-inch refined oil line to Kansas City and St. Louis with a full capacity load. The company is steadily building up its reserves in the Permian Basin, which can be tied into with a reasonable pipe line investment.

Invasion of the Vacuum field, Lea County, New Mexico, by The Texas-New Mexico Pipe Line Company with a 6-inch extension should materialize by mid-summer. The field is heading into an important drilling campaign, and currently is dependent upon tank truck movement and field storage. The above pipe line concern would require about 20 miles of line in extending north from its Lynch pool station.

While crude oil pipe line construction in 1938 is apt to consist of numerous short systems, there may be several large gasoline and natural gas trunks built.

Many Short Lines in East Texas

Routine extension of gathering lines in the East Texas field by numerous pipe line companies, and laying of short trunk systems and gathering lines in the Rodessa field accounted for a large mileage in the aggregate, but none of the jobs were of great consequence. Most important project was authorized late in the year when Bell-General Transit Corporation acquired McMurrey Pipe Line Company's Overton to Tyler 8-inch carrier, and purchased pipe to lay 21 miles of 8-inch line from Tyler to the Bullard station on Pure Transportation Company's Van to Smiths Bluff system. This will in reality provide the East Texas field with another connection to the Gulf Coast.

Lone Star Gas Company began work in December on 19 miles of 18-inch line to link its newly acquired properties in the Buffalo gas district, Leon County, with its Long Lake-Waco system.

Rapid development of the K-M-A high gravity field in North Texas will result in the laying of new lines into the area. The oil enjoys a popular demand from the three majors that are bidding for connections. Stanolind Pipe Line Company is a prospective entrant, while Humble Pipe Line Company may reenter the area also. The former would require about 30 miles of line in extending south from Devol, Oklahoma, opposite the Burkburnett district.

Little in Prospect in Gulf Coast

The Gulf Coast districts of Texas and Louisiana are not apt to get more than connecting links to trunk lines and gathering systems in 1938, unless some unexpected fields are discovered.

The only outstanding pipe line construction work in 1937 was the building of a 160-mile line in South Louisiana by Standard Oil Company of Louisiana. This line runs from Roanoke field, Jefferson Davis Parish, to the company's Baton Rouge refinery, and provides a much needed outlet.

South Texas Was Active

One of the most active districts during 1937 was South Texas, where the rapid development of fields the past two years resulted in the extension of pipe line systems. The Corpus Christi port district received the bulk of 1937 construction. However, several additional projects are still under consideration, and it is anticipated that 1938 will be a good year also, although most of the lines probably will be shorter than those laid the past year.

E. L. Buckley interests still contemplate construction of a new system out of the Mirando and several coastal fields to Corpus Christi. Alamo Pipe Line Company (headed by Edwin M. Jones) contemplates extension of its pipe line from the new Ezzell field to Corpus Christi, some 75 miles. Magnolia Pipe Line Company will likely extend its facilities from the Premont area to Corpus Christi.

North Louisiana Needs Gas Lines

North Louisiana's greatest need at the opening of 1938 is sufficient gas line outlets for fields discovered and waiting for connections before extensive development gets underway. Some of these fields are: Bisteneau, Bienville Parish; Bear Creek, Bienville Parish; Driscoll, Bienville Parish; and Sibley, Webster Parish. All have gas-distillate production.

Reports have been heard for some time that a trunk gas line from North Louisiana to Philadelphia or New York would be built

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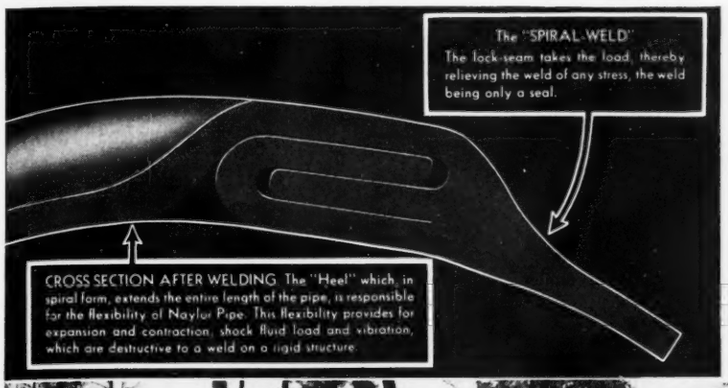
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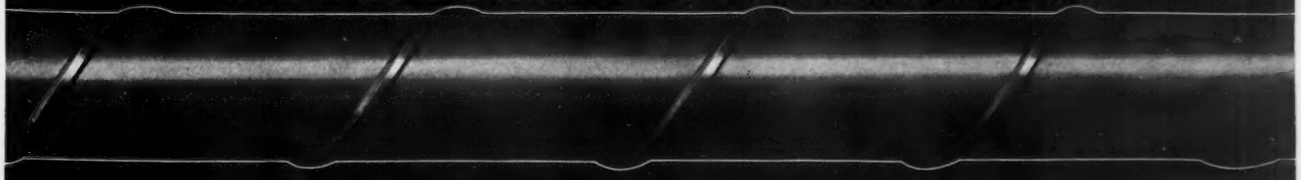


NAYLOR PIPE COMPANY · 1233 EAST 92nd STREET CHICAGO, ILLINOIS

United States Pipe Line Systems Extended in 1937

* Gasoline Lines † Natural Gas Lines.

COMPANY	ORIGIN	TERMINUS	Length, Miles	Diameter, Inches	Status
Eastern States					
†Chattanooga Gas Co.	Cedertown, Ga.	Chattanooga, Tenn.	80	?	Proposed
*Keystone Pipe Line Co.	Williamsport, Pa.	Buffalo-Rochester	220	8	Completed
*Shell Petroleum Corp.	Roxana, Ill.	Indianapolis, Ind.	250	8	Building
†United Fuel Gas Co.	Cedarville, W. Va.	Majorsville, Pa.	95	20-18	Contemplated
†Dominion Gas Co.	Bergton, Va.	Coast Cities	682	?	Contemplated
California					
Union Oil Co.	Santa Maria	Trunk Line	10	8	Completed
Union Oil Co.	Rio Bravo	Trunk Line	5	6	Completed
Arkansas					
Arkansas Pipe Line Co.	Troy	Shreveport Trunk	2½	4	Operating
Arkansas Pipe Line Co.	Troy	Russellville	10	6	Operating
Lion Oil Refining Co.	Schuler	El Dorado	14	8	Operating
Southern Liberty Pipe Line Co.	Capps	Rodessa, La.	4	6	Operating
North Louisiana					
Arkansas Pipe Line Co.	Sligo	Shreveport Trunk	1½	4	Operating
Arkansas Pipe Line Co.	Sligo	Shreveport Trunk	¾	6	Operating
Barbour & Woods	Lisbon	Minden	28	6	Contemplated
East Texas Refining Co.	Rodessa	Capps, Ark.	3	6	Operating
Gulf Pipe Line Co.	Lisbon	El Dorado Trunk	14	6	Operating
Caddo Pipe Line Corp.	Lisbon	Homer	8	6	Operating
Atlas Pipe Line Co.	Sligo	Curtis	2	4	Operating
South Louisiana					
†Texas Pipe Line Co.	Lafitte	Lake Grande Ecaille	28	8	Completed
Continental Oil Co.	Jennings	Tepetate	15	6	Completed
Standard Oil Co. of Louisiana	Roanoke	Baton Rouge	160	6-8-10	Completed
Michigan					
Simrall Pipe Line Corp.	Buckeye	Mt. Pleasant	35	6	Completed
Simrall Pipe Line Corp.	Bentley	Buckeye Station	12	4	Completed
Simrall Pipe Line Corp.	Clayton	West Branch Station	15	4	Completed
Simrall Pipe Line Corp.	Mt. Pleasant Station	Greendale Station	15	6	Completed
Pure Transportation Co.	Greendale Tank Farm	Buckeye Field	33	6	Completed
Pure Transportation Co.	Mt. Pleasant Station	Sherman Oil Field	14	6	Completed
Naph Sol Pipe Line Co.	Buckeye Field	Coleman Rail Racks	21	4	Completed
McClanahan-Leonard Pipe Line Co.	Greendale	St. Louis Stations	6	6	Completed
McClanahan Pipe Line Co.	Clayton & Adams Fields	Rail Racks	15	4-3	Completed
Bay Pipe Line Co.	Bay City	Buckeye Oil Field	33	6	Completed
State Refining & Pipe Line Co.	Allegan Oil Field	Hudsonville	9	3	Completed
Utilities Pipe Line Co.	Mt. Pleasant	Sherman Gas Field	13	4	Completed
West Michigan Consumers	Muskegon	Ravenna Gas Field	15	4-3-2	Completed
Montana					
Home Oil & Refining Co.	Cut Bank	Great Falls	100	6	Contemplated
Wyoming					
Illinois Pipe Line Co.	Byron	Garland	10	8	Operating
†Northern Utilities Co.	Poison Spider	Emigrant Gap	13	14	Operating
†Northern Utilities Co.	Poison Spider	Loop back to Casper-Sand Draw Line	5 west	14	Operating
†Northern Utilities Co.	Muskrat Junction	Loop back to Casper-Sand Draw Line	5 east	14	Operating
†Northern Utilities Co.	Poison Spider	East of Poison Spider	30	14	Contemplated
New Mexico					
Atlantic Pipe Line Co.	Eunice	Hobbs	16	6	Completed
Trans-Pecos Pipe Line Co.	Artesia Dist.	Lynch Station	35	5½	Completed
Texas Gulf Coast					
Gulf Pipe Line Co.	Lochridge	Almeada	22	4	Completed
Sun Pipe Line Co.	Nome	Gladys Station	20	6	Completed
*Humble Pipe Line Co.	Dickinson	Baytown	24	3	Completed
*Humble Pipe Line Co.	Satsuma	Baytown	39	8	Completed
Humble Pipe Line Co.	Anahuac	Baytown	21	8	Completed

[Table continued on following page]

in 1938, but no confirmation has been forthcoming.

One 18-mile 6-inch line and one 14-mile 6-inch line are the only present oil pipe line outlets for Lisbon, but survey is being made for another similar-sized system.

New outlets for Schuler undoubtedly will be built in 1938 as well as a line to the Bucker field, Columbia County, Arkansas.

Short Lines in Kansas

Present low allowables in most of the prolific fields of Western Kansas, and the fact that numerous purchasers have cut their "takes" from some of the more highly productive areas, combine to present a somewhat formidable obstacle to the laying of additional lines. Nevertheless, the probabilities are that where new production is discovered, lines will be constructed. Lines that at present extend through Barton, Russell, Ellis and Rooks counties are the most apt to be expanded as this territory looks most favorable for new fields.

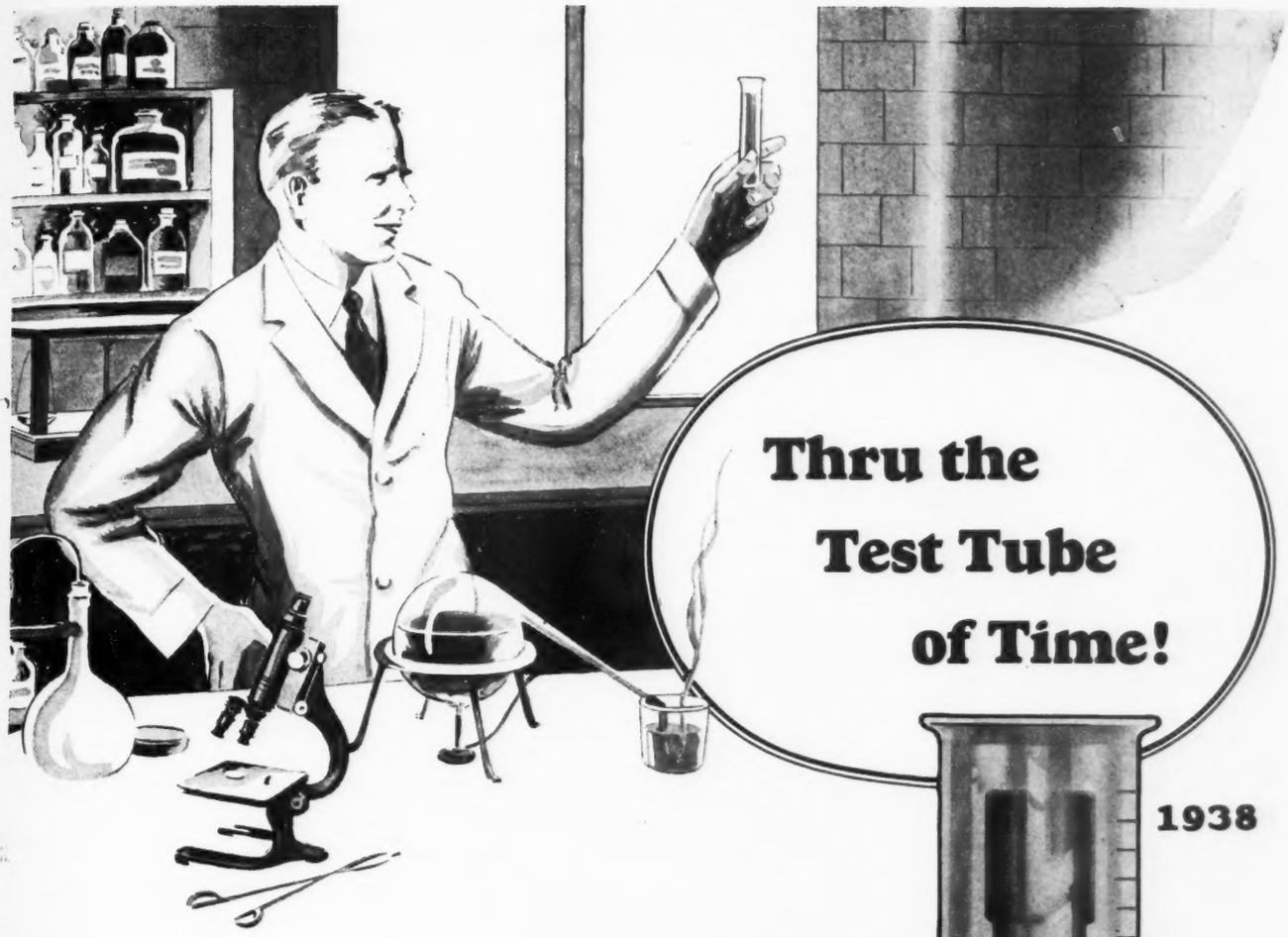
Laying a few lines, connecting of existing lines and reconditioning, received most of the attention in Kansas during 1937, and probably will during 1938.

Oklahoma Is Inactive

Unless more pools in wildcat territory are opened in Oklahoma, the amount of pipe line construction in 1938 probably will be very small. The majority of present producing areas have adequate gathering and outlet systems. In addition pipe line systems so traverse producing areas that only short lines are required to connect to trunk systems, for instance the new strike in Payne County was only 1½ miles from the Oklahoma City-Edmond-Cushing line of Oklahoma Pipe Line Company.

Southwestern Oklahoma may require slight expansion of present systems to serve the new fields opened there.

Most important pipe line construction in prospect, and one that ranks high in the nation, is the talk of four independent concerns building a 650-mile gasoline line to central Iowa. These companies, Anderson Prichard Oil Corporation, Bell Oil & Gas Company, Cushing Refining & Gasoline Company and Rock Island Refining Company, were scanning estimates of cost and details of construction at the first of the year. The line would be 650 miles long, originating at the refineries of the respective companies, with the southern



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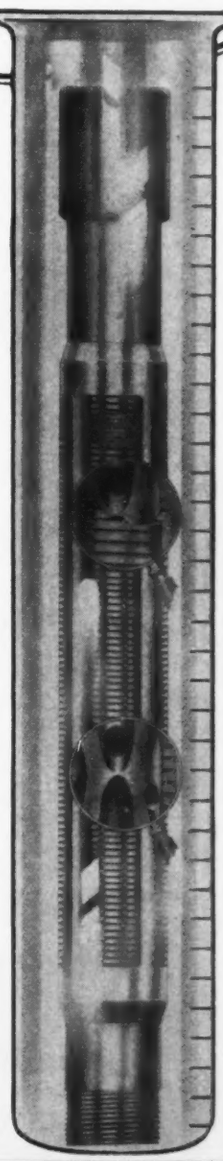

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THE LAYNE Screens

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United States Pipe Line Systems Extended in 1937

(Continued from preceding page)

* Gasoline Lines † Natural Gas Lines.

COMPANY	ORIGIN	TERMINUS	Length, Miles	Diameter, Inches	Status
North Texas					
The Texas Pipe Line Co.	Bryson District	Breckenridge Station	20	8	Completed
The Texas Pipe Line Co.	Bryson District	Breckenridge Station	22	6	Completed
West Texas					
Comanche Pipe Line Co.	Masterson	Pecos Valley Field	13	2	Completed
†Ector Gas Co., Inc.	Goldsmith	Harper-Foster	11	6⅝	Completed
†Ector Gas Co., Inc.	Goldsmith	Harper-Foster	13	4	Completed
Gulf Refining Co. Pipe Line Div.	Sand Hills	N. Crane	27	6	Proposed
Gulf Refining Co. Pipe Line Div.	Goldsmith Station	N.W. Goldsmith	8	6	Completed
Gulf Refining Co. Pipe Line Div.	Goldsmith Field	(Gathering)	35	4	Completed
Gulf Refining Co. Pipe Line Div.	Winkler Co.	(Gathering)	16	4	Completed
Humble Pipe Line Co.	Bennett-Wasson	Hobbs, N. M.	38	6	Completed
Humble Pipe Line Co.	Crane District	Kemper (loops)	39	8	Completed
Humble Pipe Line Co.	Avoca			4	Completed
Humble Pipe Line Co.	Higgs	Hawley Station	9	4	Completed
Mason Pipe Line Co.	Mason	Car Rack	10	4	Completed
*Phillips Petroleum Co.	Goldsmith	Judkins Rack	16	3	Completed
Shell Pipe Line Corp.	Goldsmith-Harper	Sand Hills Station	50	6	Completed
*Standard Oil Co. (Texas)	Grand Falls	Wickett	11	3	Completed
The Texas-New Mexico Pipe Line Co.	Wink Station	Crane Station	40	12	Completed
The Texas-New Mexico Pipe Line Co.	Monahan Station	Estes	10	6	Completed
The Texas-New Mexico Pipe Line Co.	Monahan Station	Estes	3	4–6	Completed
East Texas					
Bell-General Transit Corp.	Tyler	Bullard Station	21	8	Authorized
†Lone Star Gas Co.	Buffalo Field	East Buffalo	19	18	Building
Normandie Oil Corp.	Sulphur Bluff Field	Saltillo Rack	8	8	Completed
Arkansas Pipe Line Co.	Jefferson	Rodessa Trunk	2½	4	Operating
Arkansas Pipe Line Co.	Jefferson	Rodessa Trunk	2½	6	Operating
Arkansas Pipe Line Co.	Lodi	Rodessa Trunk	5	8	Operating
Arkansas Pipe Line Co.	Lodi	Rodessa Trunk	¾	10	Operating
Gulf Pipe Line Co.	Jefferson	Rodessa Trunk	6	6	Operating
Texas Panhandle					
†Phillips Petroleum Co.	Sunray-Dumas	Sanford Plants	31	24	Completed
South Texas					
Alamo Pipe Line Co.	Ezzell	Kittie	12½	4½	Operating
Alamo Pipe Line Co.	Kittie	C. C. Ship Channel	75	5½	Planned
Amsco Pipe Line Co.	Luby	Clarkwood	12	4½	Operating
Barnsdall Pipe Line Co.	Placedo	C. C. Ship Channel	65	6	Operating
E. L. Buckley	Benavides	Alice	12	5½	Contemplated
E. L. Buckley	Alta Mesa	Alice	40	4	Contemplated
E. L. Buckley	Seven Sisters	Alice	35	5½	Contemplated
E. L. Buckley	Alice	Corpus Christi	55	8	Contemplated
Duval Pipe Line Co.	Sweden	C. C. Ship Channel	67	6	Operating
Gravis Pipe Line Co.	N. Sweden	Benavides	4	4½	Operating
Humble Pipe Line Co.	Pearsall	Lytle	32	6⅝	Operating
Humble Pipe Line Co.	Benavides	Viola	65	8	Operating
Humble Pipe Line Co.	Flour Bluff	Viola	23	4–8	Operating
Humble Pipe Line Co.	N. Sweden	Benavides	5	6	Operating
Jim Wells Pipe Line Co.	W. Premont	Railroad	6	4	Operating
M. A. R. Pipe Line Co.	Saxet	C. C. Ship Channel	16½	6	Operatiug
Magnolia Pipe Line Co.	Tilden Station	C. C. Ship Channel	85	8	Operating
†Mercedes Fuel Co.	Mercedes Field	Valley Main Line	8	6	Operating
Pasotex Pipe Line Co.	Alta Mesa	Rachael	3	10½	Operating
Pontiac Pipe Line & Export Co.	Clarkwood	C. C. Ship Channel	10	6–4	Operating
Republic Oil Corp.	Sweden	Sweden Townsite	5	4½	Operating
Republic Oil Corp.	N. Sweden	Benavides	5	4½	Operating
Republic Pipe Line Co.	Saxet	C. C. Ship Channel	10	4	Operating
Saxet Heights Pipe Line Co.	O'Hern	Government Wells	33	4	Operating
†Southern Pipe Line Co.	Saxet	Viola	3	20	Building
*Southern Pipe Line Co.	Saxet	C. C. Ship Channel	10	3½	Operating
*Southern Pipe Line Co.	Saxet	Gasoline Plant	8	4	Building
Valley Pipe Line Co.	Ricaby	Samfordyce	16	5½	Operating
Oklahoma					
Oklahoma Pipe Line Co.	Francis	Cromwell	12	8	Operating
Oklahoma Pipe Line Co.	Moore	Oklahoma City	12	6–8	Operating
†Oklahoma Natural Gas Co.	Marshall	Enid	60	10–8	Operating
Continental Pipe Line Co. (Loop)	Oklahoma City	Ponca City	5	8	Operating
Shell Pipe Line Corp.	Cushing, Okla.	St. Louis, Mo.	75	10	Operating
Pure Oil Co.	Edmond	Oklahoma City	14	4	.....
Cities Service Gas Co.	.....	.....	55	12	Operating
Kansas					
Skelly Oil Co.	Bushton	Bloomer	9	6	Operating
Standish Pipe Line Co.	Lyons	McPherson	12	6	Operating
Stanolind Pipe Line Co.	Eureka	Neal	12	8	Operating
Continental Oil Co.	Geneseo	Ainsworth	37	8	.....

terminus at Grandfield, Oklahoma. There was some speculation as to the possibility of extending the line southward to Colorado, Texas, to serve the refinery of Coltex Refining Company.

Eastern Area May Increase

Although states located east of the Mississippi (not including Michigan) were responsible for considerable construction in 1937, if only a few of the talked of projects are built 1938 will be a better year. It is anticipated that gasoline and natural gas line expansion are the most promising in this territory. It has a number of large cities that provide important consuming centers for both commodities.

Most important work last year was the building of Keystone Pipe Line Company's 220-mile gasoline line from Williamsport, Pa., to Buffalo and Rochester, New York.

Rocky Mountain Expects More

Pipe lining in the Rocky Mountain territory during 1937 was nominal, but it is possible that additional construction will be made during 1938.

At present, Home Oil & Refining Company contemplates the laying of a 100-mile line from the Cut Bank field to Great Falls. It will consist of 6-inch pipe if laid.

Another 100-mile Rocky Mountain construction project for 1938 is even more probable. Northern Utilities Company plans to lay 13-inch pipe to join two five-mile loops constructed at Poison Spider and Muskrat Junction. Such work would provide a continuous parallel loop from Muskrat Junction to Emmigrant Gap.

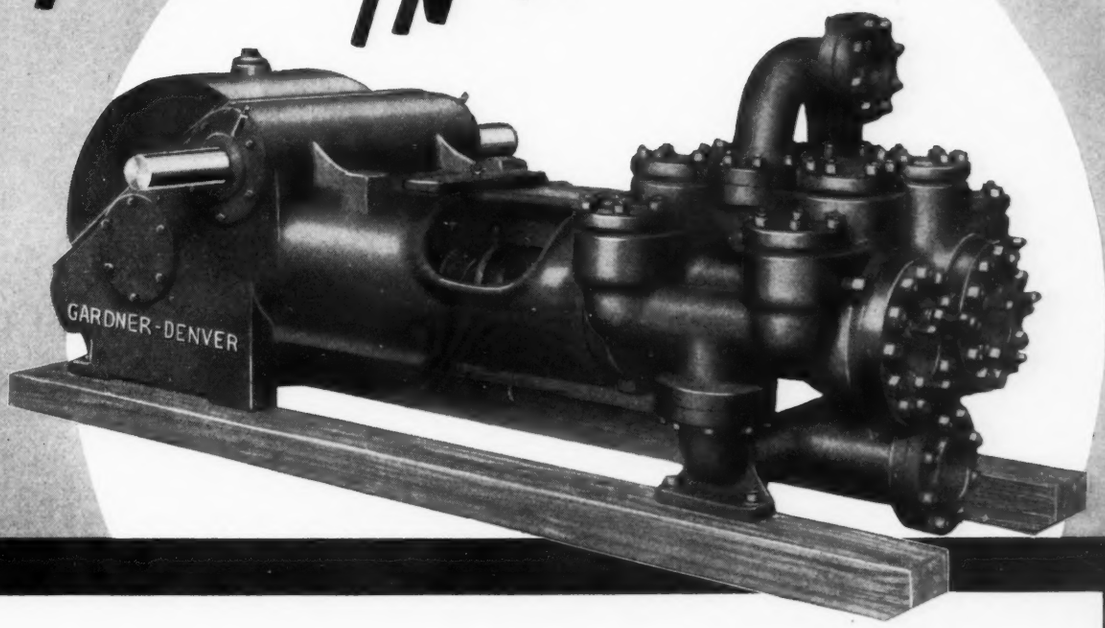
Michigan to Be Quieter

Because of active construction in 1937, pipe line building programs in Michigan this year depend largely on success of wildcat drilling and its location. Simrall Pipe Line Corporation has a tentative plan to replace or loop about 30 miles of line between Mt. Pleasant and Crystal. Likewise, Sun Oil Company has under consideration the construction of a 6-inch line from Buckeye to Bay City, approximately 35 miles distance.

Last year approximately 236 miles of new pipe line was built in Michigan, with the Buckeye field causing nearly 70 percent of the work.

Only 28 miles of gas line was built last year, but it is possible that 1938 will show a better record.

A PROVEN PUMP IN A NEW SIZE



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Tanker Construction

Extensive building program inaugurated in 1936 was expanded in 1937, and may be further enlarged during coming year

By DENIS S. SNEIGR

TANKER construction, as it has been for the past few years, continues on its upward swing. Today, there are approximately the same number of tankers under construction as at the beginning of 1937. That is, some 80 tankers were building throughout the world on January 1, 1937, and although 52 new tank ships have been launched since the middle of 1937, because of new orders, approximately 80 tankers are under construction today.

Although 1937 was one of the most progressive tanker construction years in history, 1938 is apt to exceed it. At present plans have been announced for a number of new ships, and some countries are urging the building of additional tankers, so that there will be a sufficient number to service their navies in case of war.

In addition, however, the increased demand for all types of petroleum products, particularly in many countries not having their own crude supply close at hand, and the need for tanker replacements seem to be the two fundamental causes behind the continued rapid building. About 25 percent of the world's ship building at present is devoted to tanker construction.

The new 1937-38 Lloyd's Register shows that there are approximately 1558 tankers with a total world tonnage of 9,957,140 tons in the world today. Eight hundred and ninety-five of these ships are steam powered, and the remainder, 663, are motorships. Latest tonnage figures by countries are shown in an accompanying table. The United States and Great Britain, it will be noted, have a substantial lead in tanker capacity. Furthermore, these two nations are the leading builders of new tank ships.

United States is Active

Of the 300,000 tons of shipping under construction in the United States at the end of 1937, roughly 62 percent was for the oil business. This figure includes drilling barges, boiler barges and oil barges, as well as tankers.

A survey of various yards throughout the United States revealed the following construction underway on January 1:

The Bethlehem Ship Building Corporation has six tankers under construction. Three of these ships are for Standard Oil Company of New Jersey. Each of these ships has a deadweight of 13,000 tons, and the dimensions are 442 feet x 64 feet x 34 feet 10 inches. The delivery dates for these three tankers are April, July and October of 1938. In December, 1937, a tanker of the same tonnage and dimensions was delivered to Standard of New Jersey.

Two 11,000-ton deadweight tankers are building for Gulf Oil Corporation at the Bethlehem yards. These two ships are 442 feet x 54 feet x 34 feet. They are equipped with double reduction geared turbines. The *Gulfwave* was launched October 9, 1937, and will be delivered this month. The second ship will be launched this month and delivered in March, 1938.

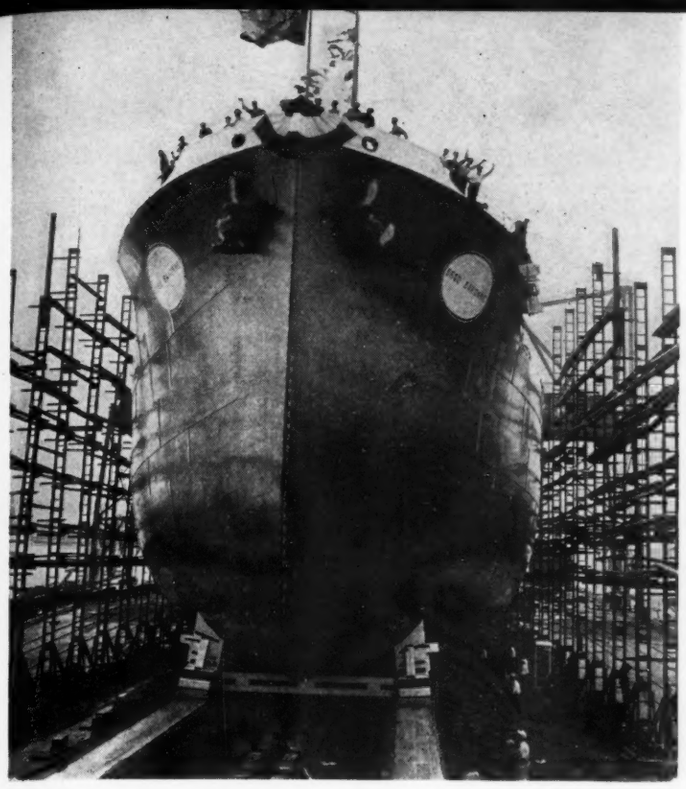
The other tanker building at the Bethlehem yards is for The Texas Company with delivery slated for December, 1938.

The Sun Ship Building and Dry Dock Company also has six tankers under construction. 212,900-ton deadweight ships are for Standard of California. These tankers, the *W. H. Berg* and the *H. B. Collier,* are steam turbines. The cargo capacity is 100,000 barrels. The

Tanker Tonnage by Countries Is High

COUNTRY	STEAMERS		MOTORSHIPS		TOTAL	
	No.	Tons	No.	Tons	No.	Tons
Great Britain and Ireland	223	1,233,917	171	1,299,577	394	2,533,494
Canada	19	41,164	8	82,446	27	123,610
Other British Possessions	25	186,286	8	49,474	33	229,760
United States	330	2,243,134	64	332,065	394	2,575,199
Norway	60	408,845	190	1,447,405	250	1,856,250
France	30	164,105	10	77,775	40	241,880
Germany	10	73,302	17	86,693	27	159,995
Holland	43	138,268	50	309,040	93	447,308
Panama	5	46,559	35	350,600	40	397,159
Russia	3	7,898	21	111,432	24	119,330
Japan	8	56,194	20	166,598	28	222,792
Italy	58	276,333	14	80,010	72	356,343

Authority: Lloyd's 1937–38 Register.



The *S.S. Esso Bayonne* of Standard Oil Company of New Jersey taking to the water at Kearny, New Jersey. The new ship is designed to carry over 4,400,000 gallons of gasoline and oil. It is 450 feet long, burns oil, has a deadweight of 12,900 tons, will travel at a speed of over 12 knots hourly, and will operate at an efficiency of 20 to 40 percent greater than earlier tankers.

W. H. Berg was launched December 14, 1937.

An 18,500-ton deadweight turbo-electric tanker, the *J. W. Van Dyke,* is nearing completion for Atlantic Refining Company. This vessel is 521 feet x 70 feet x 40 feet, and cost approximately $2,000,000. It was launched November 20, 1937, and will be delivered in February, 1938.

This tanker is the world's largest welded ship and the first American built turbo-electric tanker. Propelled by 5000-horsepower engines at a speed of 13 knots, the *J. W. Van Dyke* will make the trip between Gulf ports and Philadelphia in six days. The ship is fitted with cargo pumps which will empty the holds at a rate of 15,000 barrels per hour, about three times as fast as the usual discharge rate.

For Sun Oil Company an 18,360-ton deadweight tanker, 542 feet 5 inches x 70 feet x 40 feet, is building. An interesting feature of this ship is the motor, one five-cylinder, 6000-horsepower Diesel.

A 12,900-ton deadweight, single screw, steam turbine tanker, 442 feet x 65 feet x 35 feet, for Bernuth-Lembcke Company will be delivered in June, 1938.

For Tide Water Associated Oil Company, one 12,900-ton deadweight tanker with the same dimensions as the above ship is building. This ship will have a speed of 13 knots.

Newport News Ship Building and Dry Dock Company has only one 2600-ton deadweight tanker being built for Standard Oil Company of New Jersey. The dimensions are 260 feet 6 inches x 43 feet 6 inches x 18 feet 3 inches. This ship will be powered by two 650-brake-horsepower Diesel engines, and a 1000 shaft horsepower motor. Delivery is for this month.

Dolomite Marine Corporation has one Diesel tanker and cargo ship being built for the Dolomite interests. The ship was launched November 20, 1937.

One 2350-ton Diesel tanker is under construction at the Manitowoc Ship Building Corporation for Socony-Vacuum Company. The dimensions are 290 feet x 49 feet 6 inches x 20 feet 6 inches.

Jakobson and Peterson has one harbor tanker building for Socony-Vacuum. Of 30 gross tons, this ship is 55 feet x 13 feet 6 inches x 7 feet 6 inches.

Federal Ship Building and Dry Dock Company is building two tankers for Standard of New Jersey. These ships are of 12,800 tons deadweight and 440 feet x 66 feet 6 inches x 34 feet 6 inches. One of them, the *Esso Houston,* was launched December 18, 1937.

At this yard two tankers of 12,900 tons deadweight are building for the Pan American. The dimensions are 450 feet x 66 feet 6 inches x 34 feet 6 inches.

Standard of New Jersey Leads

A check of the above list shows the Standard of New Jersey building six tankers; the Pan American, Socony-Vacuum, Gulf and Standard of California building two each; and The Texas Company, Atlantic Refining Company, Sun Oil and Tide Water each have one ship under construction.

The Standard of New Jersey continues to lead in the United States in new tanker construction. One of the latest of this company's tankers is the *Esso Houston,* launched December 18, 1937, at Kearny, New Jersey, by the Federal Ship Building and Dry Dock Company. The launching of this tanker followed two sister ships of similar construction completed by the same yard earlier in 1937. All three ships were from a design adopted in 1934 to improve the efficiency of oil carriers.

The *Esso Houston* is an oil burner with a sea speed of over 12 knots. The cargo capacity is more than 4,400,000 gallons. The launching of this ship was the sixth of ten new oil tankers in the Standard's $16,000,000 tanker building program. The Federal yard was awarded contracts for four of these ten new tankers in July, 1936. It is expected that the last vessel in this group will be launched in the near future.

Following closely this $16,000,000 construction program was the announcement on January 12, by Joseph P. Kennedy, chairman of the United States Maritime Commission, that the Standard of New Jersey would begin construction immediately of 12 new, high speed tankers to meet the urgent requirements of the Navy for auxiliary vessels. The construction of these tankers is under an agreement with the Maritime Commission.

The Standard will pay for the construction of these vessels and will maintain them for the next 20 years, according to the agreement, while the Maritime Commission will pay outright for the increased expense to equip the tankers for high speeds and to install national defense features.

However, at the time of the announcement of this construction of new tankers, Chairman Kennedy emphasized that in no sense was the Maritime Commission's share of the expense a construction subsidy.

On competitive bids contracts were awarded to four ship building companies to build three tankers each. The total cost of the 12 ships is $37,566,004, with the Maritime Commission's share of the expense totaling $10,563,000. The total cost of each tanker when completed and equipped with defense features is $3,129,667.

The four ship building companies which were awarded the contracts

tor these ships are the Newport News Ship Building and Dry Dock Company, The Sun Ship Building and Dry Dock Company, The Federal Ship Building and Dry Dock Company and the Bethlehem Ship Building Corporation (the Baltimore yard).

The contracts for these tankers call for a ship 525 feet in length between perpendiculars and 551 feet six inches overall, with a deadweight tonnage of 16,300 tons and a 150,000-barrel cargo capacity. The new ships will be capable of a speed of 18 knots, and a sustained sea speed, fully loaded, of 16½ knots. The engines will generate 12,800 horsepower, 300 percent more power than the average tanker engine. It is estimated that from 14 months to 3 years will be required to complete all 12 of these new tankers.

The United States Maritime Commission says that the United States fleet is dangerously deficient in ships of this kind which are capable of accompanying the battle fleet. It is reported that the commission would like to see about 20 tankers of this type under construction and is willing to negotiate a similar agreement with other oil companies.

Another interesting tanker now is building for the Tide Water Associated Oil Company at the Sun Ship Building yards at Chester, Pennsylvania. This new vessel is of 12,900 tons deadweight and is generally similar to the two tankers built by the Sun yards for the Standard of California, one of which—the *W. H. Berg*—was launched December 14, 1937. However, changes were made to increase the boiler capacity of the Tide Water tanker and two superheat control type boilers were installed. Electric turbines will drive the ship through reduction gears. The shaft horsepower is approximately 3600 and the design speed is 13 knots on trial. Another engineering feature of the vessel is the four pumps which will discharge the cargo at 10,000 barrels per hour. The cargo capacity of this ship is about 105,000 barrels of gasoline. She has been designed primarily for trading on the Pacific Coast.

Besides these tankers under construction in the United States there are scores of oil barges, both self-propelled and otherwise, building in various American yards.

Great Britain Busy

Great Britain continues to build with a score of tankers under construction. The British Tanker Company is taking the majority of these new ships. Adding to the construction work now in progress in England is the recently placed order of the Royal Dutch Shell group with six English yards for eight new tankers.

In Germany a peculiar situation exists as concerns tanker building because of the foreign currency policy adopted by that country. Since oil companies operating on an international scale are not permitted to make use of their German profits obtained through their operations unless goods are bought in Germany, several of the larger oil companies are finding it profitable to have tankers built in German yards.

And while pipe and other oil supplies of German manufacture are being bought with these otherwise frozen profits, the oil companies would not find it profitable to expend the entire amounts on such goods. As a result, German ship yards have about a dozen tankers building for several companies; namely, Standard-Vacuum, Standard of New Jersey, Standard of California, Crusader Petroleum Industries, Ltd., the United Africa Company, Ltd., and the Anglo-Saxon Petroleum Company, Ltd.

Fast Japanese Tankers

Japan continues to lead the world in fast tankers, no other country as yet showing an inclination to compete with Japan in speed. However, the result of these fast tankers on construction in other countries is seen in the gradual increase in speed. For example, several 14-knot tankers are building in European yards and the Standard of New Jersey recently ordered 12 16½-knot ships.

While very little definite information is available on these fast Japanese tankers, the following table gives a general idea of their principal characteristics:

Length	500	feet
Width	65	feet
Depth	37	feet
Draught Loaded	29	feet
Deadweight	13,500	tons
Net	10,000	tons
Speed	19	knots
Engines—Diesels	9,000	h.p.
Cargo Capacity	13,000	tons

In April, 1938, the new tanker for Yacimientos Petroliferos Fiscales, Argentine government oil company, will make her trial runs. Built at a cost of 5,406,000 Argentine pesos, the plans call for a trial speed of 15 knots and a loaded sea speed of 13 knots.

The dimensions of this ship are 544 feet 7 inches x 61 feet 7 inches x 34 feet 11 inches, with a loaded draught of 25 feet 6 inches. She will have a cargo capacity of 10,500 tons and a dry hold of 21,186 cubic feet. Four cylindrical boilers will provide steam for triple expansion engines of 7000 horsepower.

Small Tankers

Besides the construction of heavy tankers throughout the world, smaller tankers for specialized services in harbors and for use on inland waterways are being ordered and built. Known as "mosquito" tankers, such are becoming more and more popular for use in harbors, canals, rivers and lakes.

As an example, the Shell group is building in England 20 such lightweight tankers for refueling seaplanes. The dimensions of these boats are 50-foot length, 10-foot beam and 8¼-foot depth. The mean loaded draught is 3½ feet. While some of these boats will operate at 14 knots, the majority will have speeds of 7 to 8 knots. However, they are all built for heavy weather.

Each of these small tankers will have a cargo capacity of 2500 Imperial gallons of gasoline and 200 gallons of lubricating oil. The cargo pumps will handle 120 gallons of gasoline per minute and about eight gallons of oil per minute. A half dozen similar vessels are under construction at Cairo for service on the Nile and others are building in Italy and France.

Great Lakes Tanker

On September 18, 1937, the first large steamship to be built on the Great Lakes since 1930 was launched at Manitowoc, Wisconsin.

This tanker, the *Red Crown*, is owned by Standard of Indiana and increases that company's Great Lake fleet of tankers to five. Constructed by the Manitowoc Ship Building Company, the *Red Crown* has a deadweight capacity of 6500 tons and a cargo capacity of 53,600 barrels of oil. Reciprocating steam engines with an output of 2500 horsepower to propel the tanker. Her dimensions are 465 feet x 55 feet x 28 feet.

In conclusion, the trend at the present time in new tanker construction seems to be for small craft for specialized purposes with a slight increase in speed in the larger bulk oil carriers. And, as the situation stands today, construction may be carried on at its present rate for the next year —which seems likely. However, it is entirely possible that naval requirements, subsidies and defense measures may completely alter the picture upward.

U. S. Discoveries

Opening of largest number of new fields and sands in history, indicates results of 1938 will depend on drilling volume

THE United States experienced a very successful year in 1937 from a standpoint of volume of new producing discoveries, and results indicate that its achievements along this line in 1938 depend entirely upon the quantity of wells drilled.

In registering the opening of a new field or a new producing horizon in some previously established pool every day during 1937, a gain of 55 percent over 1936 in number of discoveries was made, although the number of wells drilled increased but 21 percent. There were a total of 357 new strikes, of which 221 were new fields and 136 were new sands in an old producing area. These figures compare with 173 new fields and 57 new sands, or a total of 230 discoveries in 1936.

Deep Drilling Helps

Several factors indicate that much of the success was due to the trend toward deeper drilling. In the first place the gain in number of new producing zones in old fields was much sharper than that of new structures. An increase of 135 percent in this division was shown, compared with 30 percent in number of new fields.

Further indicating the importance of deeper drilling was the growth in average depths of all new discovery wells. In 1937, the completion depth of all wells opening new sands or new fields averaged 4475 feet, while in 1936 the average was 3991 feet. These figures are considerably deeper than the average drilling depth in 1937, which amounted to 3230 feet per well. Admittedly, these figures do not offer a true comparison, for the Eastern States, where depths are shallow, were computed in the average drilling depth but do not show in the depth of discovery wells.

However, a growth of 30 percent in number of actual new producing structures, would indicate that the nation also still may be expected to discover many new fields.

Half New Fields in Texas

These figures are set out in an accompanying table, in which the data are broken down into districts. It will be noted that Texas is responsible for nearly half of the 221 new producing structures found, whereas in 1936 it accounted for but slightly more than one-third of the number. Texas also accounted for nearly three fourths of all new producing horizons found in old fields. Counting both types of discoveries, Texas contributed nearly 60 percent of all new producing areas. In second place was the state of Kansas, with 55 new

More New United States Discoveries in 1937 Than in 1936, and at Greater Depths

New fields and new sands in old fields found in 1937 totaled 360, compared with but 230 in 1936

AREA	Number of New Fields Found		Number New Sands in Old Fields		Average Depth of Strikes*	
	1937	1936	1937	1936	1937	1936
Arkansas	3	1	2	0	6822	4900
California	6	7	2	0	7975	5950
Illinois	8	1	2	0	2633	1037
Kansas	52	71	5	1	3293	3325
Louisiana	19	5	19	13	6521	6087
North Louisiana	4	0	1	1	5645	5175
Louisiana Coast	15	5	18	12	7398	6998
Michigan	5	12	0	0	2970	2553
New Mexico	3	0	0	0	2605	0
Oklahoma	18	0	4	2	4177	4165
Rocky Mountains	3	3	2	2	3473	3721
Texas	104	64	100	39	4283	4181
East Texas	4	3	1	0	5547	4915
North-Central	26	14	12	2	2576	2081
Gulf Coast	15	16	18	7	6741	5970
South Texas	41	22	67	30	4175	4061
West Texas	17	9	0	0	3498	3877
Panhandle	1	0	2	0	3164	0
Total	221	173	136	57	4475	3991

* Depth of discovery wells.

fields and five new producing sands in established production.

The large number of discoveries in the United States during 1937 is very important. For several years there has been a cry that the nation was apt to deplete its crude oil supply. The results last year, while certainly eliminating the volume of discoveries from future possibilities, establish a trend that would indicate the nation has both many new fields and many new producing sands in old fields yet to be discovered.

Besides the increase in number of discoveries, there were several other important accomplishments in 1937 that herald additional producing areas in the future. Foremost among these was the comeback of several states. Illinois, Arkansas, Colorado and California, after several years of unimportance found fields that promise to mean more drilling, production and additional discoveries. These and other achievements of the year from the standpoint of new strikes are set forth in the following paragraphs:

Illinois Booms Again

Illinois, considered a "has been" producing state for the past 30 years, staggered up from the floor last year to gain a listing among the top notchers. Developments in 1937 were without parallel in im-

Strikes in Illinois Basin Among Outstanding 1937 Developments

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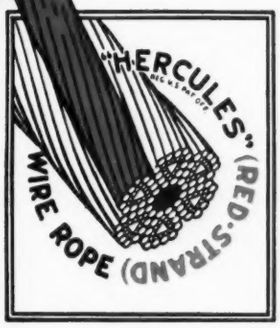

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Illinois Boomed in 1937 After 30 Years of Inactivity

(Includes new fields, new sands in old fields, and major extensions)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Type of Discovery
Patoka	Marion	Adams Oil & Gas Co.'s Merryman 1, 21-4n-1e	Benoist	1418	52	Field
Clay City	Clay	Pure Oil Co.'s Weiler 1, 33-3n-8e	Cypress	2613	40	Field
Clay City	Clay	Pure Oil Co.'s B. Travis 1, 33-3n-8e	McClosky	2960	2642	Sand
Clay City	Wayne	Myers & Fitzpatrick's Shannon 1, 26-2n-8e	McClosky	3066	100	Extension
Cisne	Wayne	Pure Oil Co.'s Bradley 1, 26-1n-7e	St. Genevieve	2987	100	Field
Noble	Richland	Ohio Oil Co.'s Arbuthnut 1, 8-3n-9e	McClosky	2990	1996	Field
Noble	Richland	Mammoth Oil Refining Co.'s Heitz 1, 34-4n-9e	McClosky	3009	1501	Extension
Noble	Richland	Southern Illinois Petroleum Co.'s Allard 1, 16-3n-9e	McClosky	2961	200	Extension
Rinard	Wayne	Benedum-Trees Oil Co.'s Knapp 1, 33-3n-7e	McClosky	3154	500	Field
Beecher City	Fayette	Carter Oil Co.'s Miller 1, 12-8n-3e	"Niagaran"	3100	70	Field
Beecher City	Fayette	Carter Oil Co.'s Clow 1, 15-8n-3e	Benoist	1503	200	Sand
New Centralia	Clinton	Adams Oil & Gas Co.'s Schmitz 1, 2-1n-1w	Benoist	1384	156	Field
Olney	Richland	Frost et al's Farris 1, 18-3n-10e	McClosky	3084	50	Field

From Illinois Geological Survey.

portance, since the discovery of the Southeastern Illinois field way back in 1904. Eight new fields were discovered, some of which have more than one producing formation.

However, the real importance of the discoveries in Illinois was in their location with respect to former producing spots. The new strikes are west of the former producing areas, consequently a large territory has been outlined for early testing. From results obtained by the campaign thus far, a number of additional pools appear certain during 1938. It goes without saying that the state will be combed actively in the coming years.

At the end of the year the new producing fields had 244 producing wells that covered 1805 acres, and the majority had not been defined. Townsite drilling at Patoka and Noble cut down materially on the amount of acreage proven by each completion.

There are several interesting angles to the drilling campaign in Illinois. First, it should be stated that the seismograph has played an outstanding role, and that it will continue to be depended upon. In addition, the discoveries, which average 3000 feet in depth, brought rotary drilling to the state.

Since active drilling of major proportions did not get underway until nearly the middle of 1937, plus the additional discoveries later in the year, Illinois should drill at least twice as many wells as in 1937, when it completed approximately 400.

Another interesting angle to the possibilities in Illinois is the possibility of deeper production. Many of the major concerns that have engaged in the widespread leasing campaign are known to be hopefully considering the St. Peters as a probable producer. This formation, deeper than the McClosky, correlates with the famed Wilcox sand in Oklahoma. While it is pure speculation as yet, a number of geologists are of the opinion it will carry oil under the right structural conditions. A few tests to the St. Peters are planned, and these will be watched closely. Should one of them tap a producing reservoir, Illinois is due to become even more important than its impressive outlook of today indicates.

The favorable results in Illinois are having an influence on neighboring areas. Western Kentucky is undergoing a leasing campaign of considerable proportions at present. The Western Interior Basin, which is the new producing area in Illinois, extends south into Kentucky. The same situation is true of western Indiana. Tennessee also is feeling the influence of the Illinois play. It is possible that Indiana, Kentucky and Tennessee may provide some important production in the future.

South Texas Tops All

South, or Southwest, Texas experienced a record breaking year of development and expansion in 1937, but will see many of its figures eclipsed during 1938. Volume of drilling, which led the world last year, probably will be about the same, but there will be a definite trend toward deeper operations. This territory, long referred to as a shallow district, now takes on the aspect of one of the world's deepest producing areas. The year just closed had nearly half of its new discoveries (fields and new producing horizons) at depths below 5000 feet.

This would definitely indicate that 1938 will see a continued demand for heavy drilling equipment capable of making rapid hole to great depths. At the same time, pressures must be controlled through modern devices, mud, heavy strings of casings and other pressure equipment for both drilling and producing operations.

The unusually active development program along the South Texas Gulf Coast (known as the Corpus Christi district) will see no let up. While Saxet, 1937 hot spot, has declined, a number of smaller fields along the trend will balance that drop. On the other hand, Keeran-Heyser-Placedo-McFaddin-Bloomington group on the Victoria-Calhoun line bids to become one of the Gulf Coast's largest producing areas with a multiple well program to oil sands ranging from 4400 to 6600 feet in depth. Refugio County, with its prolific Tomoconnor field and new deeper sand developments in the old Refugio area will be most active. East Premont in Jim Wells County likely will see a flurry as a result of the discovery of large production.

Drilling in this district will see much marine work, the first for the region.

For the first time, the Mirando district of South Texas is divided between two developments—shallow pumping and deep flowing producers. This region will see no material letup in activity during 1938, the presence of sand lenses in the Jackson series along present structures or on known shore lines is certain to provide more new fields.

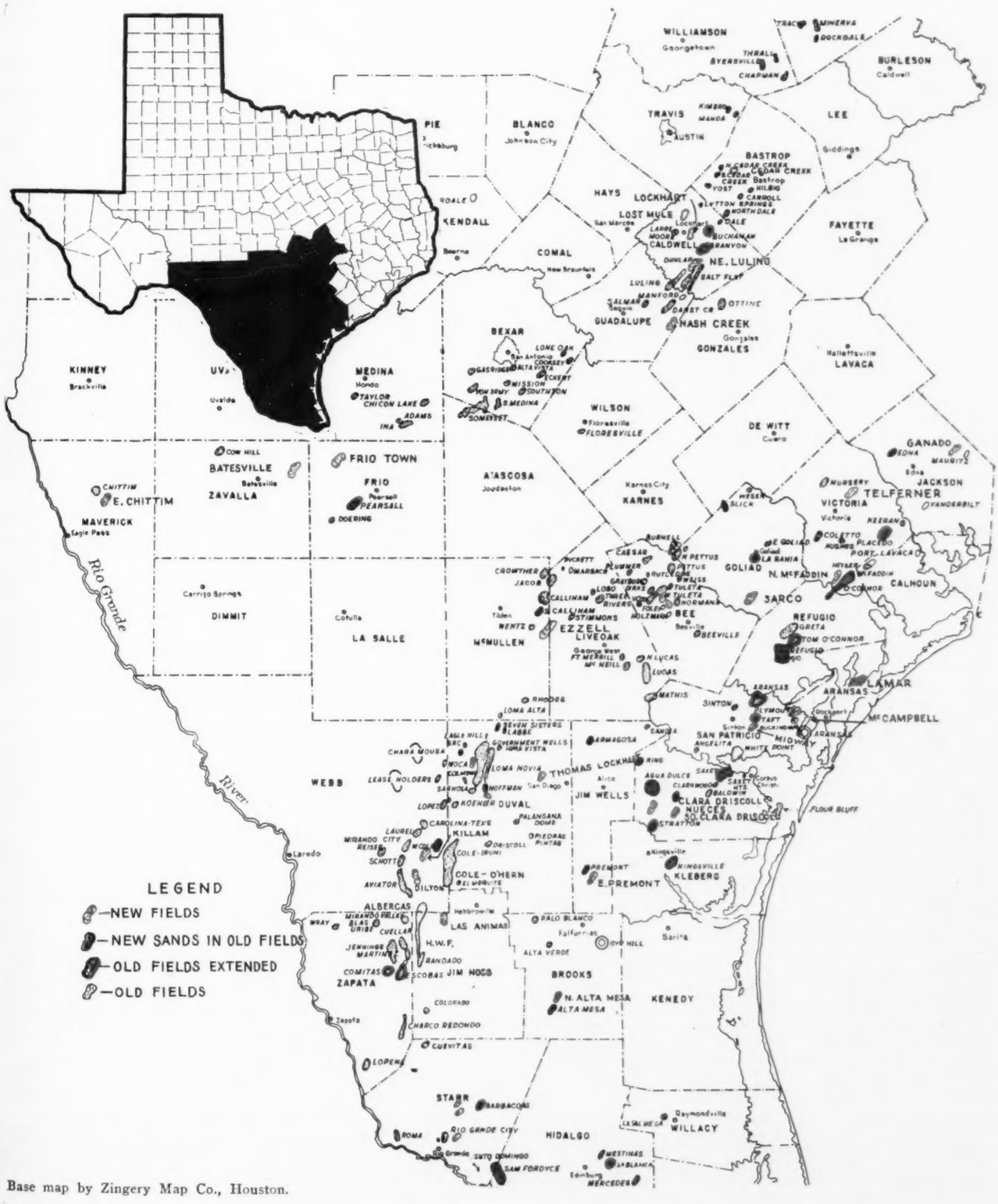
On the east side of Duval County, some 3000 feet down-dip structurally from the above trend, is the Sweden area. While production here is limited to the big North Sweden field and several small fields thus far, it is to be expected that an aggressive wildcatting program will be conducted. The outstanding factor in this play is the indication that the Sweden trend

Southwest Texas Led the World in 1937 Discoveries

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Lamar	Aransas	Barnsdall's Edwards 1-A, Lewis Sur	Frio	7530	73	55	Field
McCampbell	Aransas	Buckingham & Jones' McCampbell 2-B, McCampbell Subd.	Frio	7122	86	38–58	Sand
McCampbell	Aransas	Buckingham's McCampbell 6-A, McCampbell Subd	Frio	6794	200	46	Sand
McCampbell	Aransas	Atlantic's Porterfield 1-O, McCampbell Subd	Frio	7206	379	39	Sand
East Cedar Creek	Bastrop	Hantho-Nelson's Litton 1, Litton Sur	Austin Chalk	2132	225	42	Field
Strauch	Bee	Dirke Brothers' Strauch 1, Uranga Grant	Vegua	4275	230	46	Field
S. W. Normanna	Bee	Dougherty's Hicks 3, Uranga Grant	Hockleyensis	3674	40	46	Field[1]

(Continued on the folowing page)



Base map by Zingery Map Co., Houston.

Southwest Texas Led the World in 1937 Discoveries

(Continued from preceding page)

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Alta Mesa	Brooks	Standard of Texas' Mestina (Lse. 1) 1, Salinas Sur	Catahoula	3484	Gas	....	Sand[3]
Alta Mesa	Brooks	Standard of Texas' Mestina (Lse. 1) 1, Salinas Sur	Catahoula	3588	350	25	Sand[3]
Alta Mesa	Brooks	Standard of Texas' Mestina (Lse. 1) 5, Salinas Sur	Catahoula	4520	47	45	Sand
Alta Mesa	Brooks	Standard of Texas' Mestina (Lse. 1) 10, Salinas Sur	Catahoula	2613	40	25	Sand
North Alta Mesa	Brooks	Standard of Texas' Mestina (Lse. 2) 1, Salinas Sur	Catahoula	1925	Gas	....	Field
Lockhart	Caldwell	Burgen's Mebone 1, Berry Sur	Austin Chalk	1770	25	33	Field
Luling Townsite	Caldwell	McDonald's Tinkle 1, Seal Sur	Austin Chalk	2691	50	35	Field
Lost Mule	Caldwell	McNeil's Marino 1, Allen Sur	Lime Crevice	1739	124	18	Field
N. E. Luling	Caldwell	Lanning & Caffield's Withers 1, Guadalupe College Sur	Edwards Lime	2231	400	27	Field[3]
Heyser	Calhoun	Commonwealth's Bennett 4, Sisneros Sur	Frio	5746	200	36	Sand
Heyser	Calhoun	Normandie's Cook 3, Sisneros Sur	Frio	5568	725	36	Sand
Heyser	Calhoun	Humble & Plymouth's Marshall 2, Sisneros Sur	Catahoula	3420	Gas	....	Sand[4]
Charamausca	Duval	Duncan, Worden & Drought's 3, Sur. 151	Jackson	1537	90	22	Sand
Lundell	Duval	Government Wells' Lundell 1, Sec. 140	Jackson	1520	Wet Gas	23	Field
North Sweden	Duval	Grovis & Doran's Puig 1, San Andres Grant	Jackson	4755	220	43	Field
North Sweden	Duval	Standard of Kansas' Parr 1, San Andres Grant	Jackson	4747	265	43	Sand
North Sweden	Duval	Navarro's Rossi 1, Santos Flores Grant	Cockfield	5352	98	44	Sand
North Sweden	Duval	Woodley's Puig 1, San Andres Grant	Jackson	4810	143	43	Sand
Seven Sisters	Duval	Humble's Dowdy-Fee 5, Sec. 272	Jackson	2565	264	27	Sand
Seven Sisters	Duval	Brinkorter's Garza et al 3, Sur. 212	Frio	1566	170	20	Sand
Seven Sisters	Duval	Wellington's Welder 8-D, Sur. 381	Jackson	1720	194	21	Sand
S. Hoffman	Duval	Argo & Clopton's Smith-Cockhill 2, Sec. 498	Jackson	2688	30	27	Field
Sweden	Duval	Hiawatha's Southland 1, Ball Subd	Cockfield	5856	250	58	Field
Sweden	Duval	Hiawatha's Southland 2, Ball Subd	Jackson	5005	Gas	....	Sand
Sweden	Duval	Hiawatha's Herberger 2, Ball Subd	Jackson	5084	85	46	Sand
Thomas-Lockhart	Duval	Thomas & Lockhart's Parr 1, Sur. 26	Cockfield	4672	125	56	Field
Frio Town	Frio	Pagenkopf & Jamieson's Houston 1, Figuerro Sur	Austin Chalk	2651	50	32	Field
Pearsall	Frio	Amerada's Halff & Oppenheimer 8, Sur. 1104	Edwards Lime	6230	175	37	Sand
La Bahia	Goliad	Goliad's Cole 1, Goliad Town Tracts	Cockfield	5546	Wet Gas	....	Field
Sarco Creek	Goliad	Swiger's Wood 1-B, Shearn Sur	Vicksburg	5012	No Gauge	26	Field
Slick	Goliad	Dirks Brothers' Allen 1, Marshall Sur	Yegua	4404	16	49	Sand
Wash Creek	Guadalupe	Carver-Kallison's Rumpf 1, Burnham Sur	Taylor Marl	2585	1013	26	Field
La Blanca	Hidalgo	Pantana's Englemann 1-B, Sec. 259	Frio	6683	70	62	Field
La Blanca	Hidalgo	Pantana's McDougal 1, Lot 223	Frio	7875	125	58	Sand
Samfordyce	Hidalgo	Henshaw Brothers' Flores 1, Por 39	Frio	3074	Gas	....	Sand
Samfordyce	Hidalgo	Fohs' Guerra 1, Por 40	Frio	2855	131	28	Sand
Edna	Jackson	Steinberger & Chicago Gulf's Rodgers 1, Rodriguez Sur	Jackson	4787	15	49	Sand
Ganado	Jackson	Texas' Mauritz 1, Sec. 4	Frio	5112	65	26	Field
Las Animas	Jim Hogg	Darby's Holbein 1-B, Las Animas Grant	Jackson	1789	Gas	....	Field
Armagosa	Jim Wells	Tsesmelis and Reese, Suggs Sur	Oakville	2181	Gas	....	Sand
East Premont	Jim Wells	Magnolia's Seeligson 7, Las Jaboncillos Grant	Frio	6595	1368	36	Field
Premont	Jim Wells	Graham's Bennett 2-A, Sur. 215	Catahoula	2261	120	24	Sand
Premont	Jim Wells	Glasscock's Ritter 1, Sur. 231	Catahoula	3175	260	27	Sand
Sandia	Jim Wells	Smith's Wade 1, Bode Subd	Jackson	5163	66	52	Sand
South Burnell	Karnes	Pettus' Kinney 1-A, Ballard Sur	Cockfield	3653	314	45	Field
Kingsville	Kleberg	Humble's Kleberg 9, K. T. & I. Subd	Catahoula	3238	90	26	Sand
East Chittim	Maverick	Wellington's Chittim 1, Blk. 7	Edwards Lime	3287	100	42	Field
Ezzell	McMullen	Jones' Ezzell 4, Sec. 20	Jackson	1533	186	21	Field
South Callehan	McMullen	Jones' Ezzell 3, Sec. 3	Jackson	1236	Gas	....	Sand
South Callehan	McMullen	Snyder's Claunch 1, Hely Subd	Jackson	1058	75	22	Sand[5]
Agua Dulce	Nueces	Heep's Pure 1, Peters Subd	Frio	6339	57	49	Sand
Agua Dulce	Nueces	Union's Schroeder 1, Fuentis Sur	Frio	6845	120	58	Sand
Agua Dulce	Nueces	Union's Rivers 3 A, Palo Alto Grant	Frio	5690	25	59	Sand
Chapman	Nueces	Seaboard's Chapman 2, Sec. 38	Frio	6467	125	42	Field
Chapman	Nueces	Seaboard's Chapman 3, Sec. 38	Frio	5058	420	41	Sand
Gentonville-King	Nueces	Southern Minerals' King 2, Blk. 6	Frio	4020	85	22	Field[6]
Clara Driscoll	Nueces	Wellington & Pan-American's Sevier 1-A, Gamble Sur	Frio	5361	20	62	Sand[7]
Clara Driscoll	Nueces	Wellington & Pan-American's Sevier 1-A, Gamble Sur	Frio	5265	Wet Gas	....	Sand[7]
Clara Driscoll	Nueces	Wellington's Sevier 14, Gamble Sur	Frio	5433	78	31	Sand
Clara Driscoll	Nueces	Killam's Ellick 5, Sec. 109	Frio	4661	151	31	Sand
London	Nueces	Wellington's Stockton 1, Sec. 25	Catahoula	4703	250	25	Field
London	Nueces	Gem's Stockton 1, Sec. 25	Catahoula	4761	28	57	Sand
London	Nueces	Casner & Casner's Stockton 2, Sec. 25	Catahoula	4906	45	57	Sand
Luby	Nueces	Richardson's Cunningham 1, Sec. 77	Catahoula	4088	114	52	Sand
Luby	Nueces	Seaboard's Luby 1, Sec. 2	Frio	5050	156	44	Field
Luby	Nueces	Stanolind's McCann 3, Sh. 9	Catahoula	4350	124	52	Sand
Saxet	Nueces	Hiawatha's Griffiths 6, Sec. 416	Frio	5759	150	48	Sand
Saxet	Nueces	Republic's Ordner 3, Sec. 403	Frio	6912	129	40	Sand
Saxet	Nueces	Hiawatha's Griffiths 7, Sec. 416	Frio	5540	116	44	Sand
South Agua Dulce	Nueces	Moss' Coleman 1, Sec. 206	Frio	6788	Gas	....	Sand[8]
South Agua Dulce	Nueces	Lockhart's Eliff 1, Longoria Gr	Frio	6420	125	57	Sand
South Agua Dulce	Nueces	Texon's Eliff 2, Longoria Gr	Frio	6668	168	58	Sand
S. Clara Driscoll	Nueces	Wellington & Seaboard's Dugger 1, Sec. 125	Catahoula	3929	168	26	Field
Stratton	Nueces	Camp's Wardner 1, Stratton Subd	Frio	6002	49	49	Sand
Stratton	Nueces	Camp's Wardner 2, Stratton Subd	Frio	4725	40	58	Sand
Stratton	Nueces	Camp's Wardner 1-A, Stratton Subd	Frio	6485	120	54	Sand
Refugio	Refugio	Houston's Rooke 32, Mullen Sur	Frio	6202	96	38	Sand
Refugio	Refugio	Union's O'Brien 12, Refugio Townsite	Frio	7114	131	52	Sand
Refugio	Refugio	Pearson's Ryals 1-B, Refugio Townsite	Frio	6789	120	56	Sand
Midway	San Patricio	Phillips' Schmidt 1, Sec. 81	Frio	5340	85	34	Field
Barbacoas	Starr	Merren, SCCC 1-A, Por 89	Cockfield	5378	39	58	Sand
Hayden	Starr	Bass' Hayden 1, Por 80	Frio	1318	Gas	....	Field
Ricaby	Starr	Moss & Heard's Ricaby 1, Por 83	Frio	1316	100	24	Field
Ricaby	Starr	Moss & Heard's Ricaby 3, Por 83	Frio	1611	280	29	Sand
South Ricaby	Starr	Dodd's Wood 1, Por 84	Frio	1754	950	31	Field
South Ricaby	Starr	Dean Brothers' Valadez 1, Por 84	Frio	1872	30	30	Sand
South Ricaby	Starr	Wood's Wardner 2, Por 84	Catahoula	428	Gas	....	Sand
Southwest Ricaby	Starr	Moss & Heard's Ricaby 6, Por 83	Frio	1765	Blowout	....	Field[9]
Heyser	Victoria	Gulf's Taylor 1-B, Galbon Sur	Frio	6037	145	36	Sand
McFadden	Victoria	Transwestern's McFadden 1-E, Lewers Sur	Heterostegina	4413	173	22	Sand
North McFadden	Victoria	Transwestern's McFadden 1-A, Vairin Sur	Heterostegina	4504	230	23	Field[10]
Placedo	Victoria	Stanolind's Henderson & Pickering 1, Benavides Sur	Frio	6375	150	47	Sand
Telferner	Victoria	Magnolia's Wagner 1, Sur. 1	Catahoula	2524	Gas	....	Sand
Telferner	Victoria	Magnolia's Beck 1, Sur. 1	Frio	3582	Gas	....	Sand
.....	Victoria	Bowles & Company's Robertson 1, Burham Sur	Frio	5105	150	27	Field
Killam	Webb	Killam's Laurell 1, Sec. 333	Jackson	2035	150	22	Field
Oilton	Webb	Moore's (Gypsy) Martin 1, Sec. 458	Jackson	1943	145	22	Field
Oilton	Webb	Moore & Meader's Garua & Villareal 1	Cockfield	2435	Gas	....	Sand
West Cole	Webb	Cole's Benavides 98, Sur. 412	Vegua	2910	Gas	....	Sand
.....	Webb	Nessly's Bruni 3, Sec. 449	Jackson	1808	Gas	....	Field
Batesville	Zavala	Wilcox's Gilliam 1, Sec. 11	Georgetown	3949	5040	16	Field

[1] In immediate vicinity of Hicks and Normanna pools. Not named and may be part of those areas. [2] Same well. Completed at one level, then reworked at another. [3] On strike with Luling Field and considered by some to be an extension to that area. [4] Well blew out apparently from sand several hundred feet above total depth. This sand not producer. Several other sands carry gas but not produced. [5] This sand produced gas. Well is discovery of oil production. [6] Referred to by some as new field. Likely oil production on flank of Bentonville-King structure, that horizon producing gas. [7] Same well, completed at one level, reworked at other later. [8] Well blew out, drill pipe stuck. Completed through pipe. [9] Blew out from sand slightly shallower after test was abandoned. Made only gas. [10] Classified as a new field discovery. Shallower gas had been produced on structure prior to drilling of this well.

has possibilities in numerous horizons on a structure.

The San Antonio district is South Texas' most questionable from a standpoint of 1938 operations. It is apt to break out at most any place with an important find, while on the other hand the new year may be a comparatively uneventful one.

West Texas Spectacular

An unusually large quota of productive acreage was thrown open to development in West Texas in 1937, while the district was scoring a spectacular comeback on routine development of old fields and wildcatting.

New discoveries and field enlargements forecast an even greater volume of development during the current year. Prospecting on lease blocks subject to early expiration will continue on a large scale basis, as co-operative tests can be financed for less than the cost of lease renewals of blocks that have geological merit.

Outstanding discoveries occurred in the north portion of the Permian basin, where the average oil yield per acre is substantially lower than the south portion of the basin. Thinner lime section, carrying oil saturation, prevails in the north basin. The oil content per acre foot is less, and the volume of free gas is generally low.

Explored on the strength of a favorable geophysical survey, the Wasson field, centering upon the Gaines-Yoakum County line, stands out as the biggest strike of the year. Short term leases forced the drilling of outposts, which outlined a productive area estimated at 20,000 acres. Competitive drilling was soon underway, and one large lease owner assumed a continuous development contract on 3 sections that have since been proved. Wasson field will be an activity drilling center for several years.

Discovery of the Slaughter field, southwestern Hockley County, advanced production in the Permian basin to the northeast. Development had progressed sufficiently before the close of the year to indicate that this geophysical prospect embraces a large area. Lease owners propose to carry on a steady, but conservative drilling campaign that will be accelerated when a pipe line connection is provided next summer.

Expansion of the Duggan pool, Cochran County, and the Bennett area, Yoakum County, both old strikes held in check because of absence of a pipe outlet, points to large producing acreage in each. Considerable drilling will occur in these original north basin pools in 1938.

Ector County scored heavily in adding productive acreage through the enlargement of old fields. Goldsmith field became the most active drilling center in the district, and outpost tests to the west and northeast materially broadened the producing structure. Northwest and west extensions given the Harper field caused the launching of its first major activity, which will continue beyond the current year. North Cowden and Foster areas likewise expanded appreciably, thus assuring a continuation of development.

Discovery of the Jordan pool, northern Crane County, early in 1937, encouraged development along the 3½-mile interval separating it from the Judkins field, Ector County's first strike. Completions have since linked the two areas, although for proration purposes they are listed as separate fields. Linking of the Jordan and Waddell fields is forecasted for the current year.

Delaware basin section of West Texas contributed two oil discoveries. The Mason pool gave Lov-

Twenty New Fields Opened in Permian Basin During 1937

(Includes new fields and new sands in old fields)

West Texas

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Emma	Andrews	Sinclair Prairie Oil Co.'s Emma Cowden 1, SEc T. & P. Ry. Sec. 12, Blk. 44, T-1-N	Permian	4342	111	32	Field
Jordan	Crane	H. M. Clark-Cooper & Smith's A. P. Jordan 1, NEc P. S. L. Sec. 12, Blk. B-22	Permian	3705	94	34	Field
Scanlan	Dawson	E. L. Wilson-Atlantic Ref. Co.'s T. H. Scanlan 1, CNW NW E. L. & Ry. Sec. 83, Blk. M	Permian	4965	50	35.1	Field
Rotan	Fisher	Southern Oil Corp.'s Joe Robinson 1, NW of H. & T. C. Ry. Sec. 172, Blk. 2	Camp Colorado	3517	1000	40	Field
Wasson	Gaines	Amon G. Carter-Continental Oil Co.'s Wasson 1, SW SW NW P. S. L. Sec. 48, Blk. AX	Permian	4959	333	35	Field
Slaughter	Hockley	The Texas Co.'s Bob Slaughter 1, Labor 83 League 38, Zavalla C. S. L.	Permian	5030	502	32	Field
Snyder	Howard	Moore Bros. Corp.'s T. P. Land Trust 1, NEc T. & P. Ry. Sec. 33, Blk. 30, T-1-S	Permian	2900	213	30	Field
Avoca	Jones	Iron Mt. Oil Co.-Humble's C. Olander 1, NE NE SW B. B. B. & C. Ry. Sec. 196	Canyon	3250	5040	38	Field
Lewis	Jones	Fain-McGaha Oil Corp.'s C. Lewis 1-a, NW SW T. & P. Sec. 37, Blk. 15	Bluff Creek	1932	82	38	Field
Montour	Jones	Lewis Prod. Co.'s B. J. Rutledge 1, SEc T. & P. Ry. subdiv. 33, Blk. 20	Cook	1937	96	37	Field
Mason	Loving	Mason Oil Co.-Michigan O. & G. Corp.'s M. Kyle 2, SW SW NE T. & P. Ry. Sec. 20, Blk. 55, Tsp. 1	Delaware	3903	347	38	Field
Dorr	Pecos	J. J. Dorr et al's Payton 1, N½ H. & G. N. Ry. Sec. 99, Blk. 8	Permian	2037	39	37	Field
.....	Taylor	L. Dunn-H. McAlister's M. Bowles 1, SEc SW¼ Sec. 28, Blind Asylum Lands	Pennsylvanian	1752	3	37	Field
.....	Taylor	L. Davis-Flagstaff-Wichita Prod. Co.'s E. Lincecum 1, NEc NW¼ Sec. 21, Blind Asylum Lands	Pennsylvanian	2057	31	37	Field
Herrington	Upton	Basin Oil Properties' A. J. Herrington 1-a, SE¼ C. C. S. D. & R. G. N. G. Ry. Sec. 4, Blk. 3½	Permian	2825	526	24	Field
Wilson	Ward	C. H. Mahres-K. Slack et al's Pat Wilson 1, S¼ H. & T. C. Ry. Sec. 133, Blk. 34	Delaware	5100	133	37	Field
Bohago	Yoakum	Bohago Oil Corp.-Bond Oil Corp.'s West 1, C SE NW Sec. 606, Blk. D, J. H. Gibson sur	Permian	5255	49	31	Field

New Mexico

.....	Eddy	T. B. Collins et al's Weiler 1, 13-24s-26e	Delaware	1970	20	39	Field
.....	Eddy	Neil H. Wills et al's Colglazier-Conoco 1, 20-20s-30e	Permian	1443	132	21	Field
Parcell	Lea	J. W. Brown & Reynolds' C. M. Parcell-Conoco 1, 8-21s-38e	Permian	4401	10	28	Field

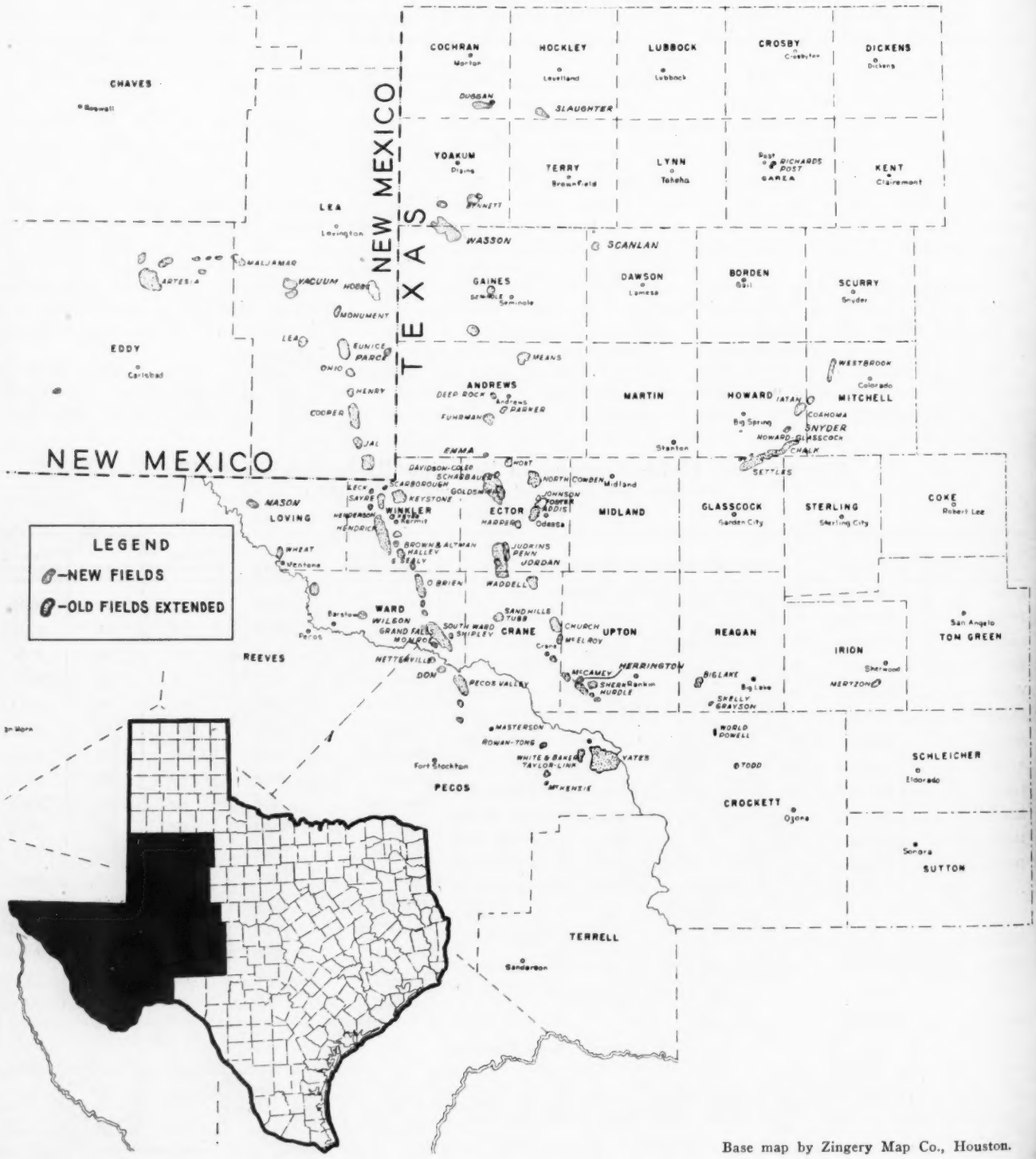
ing County its second strike in this high gravity oil zone, but it apparently will be restricted to a small area. Ward County added a new pool from the Delaware, and projected drilling should determine its scope and value early in 1938.

East rim of the Permian basin accounted for considerable activity, and several important oil strikes. Fisher County's contribution was the Rotan lime pool, which was practically defined before the end of the year. Jones County proved capable of deeper production when the Canyon lime near the 3300-foot level yielded large initial wells in the Avoca area. It is due to be an active drilling center this year, and has been effective in stimulating deeper drilling elsewhere in the county.

New Mexico Fields Expand

New Mexico failed to record a major oil or gas strike in 1937. However, this comparatively new oil producing state is assured of an active drilling program throughout the current year due to the expansion of its older fields, and the launching of a deferred develop-

Where New Supplies Were Found in Permian Basin During 1937



Base map by Zingery Map Co., Houston.

The world's first, oldest and largest oil sho will hold the greatest exposition in its fiftee years' history when the International Petroleur Exposition is held in Tulsa — May 14 to 21 1938. Since the last exposition in 1936 grea improvements have taken place in the petroleur industry — new inventions have been create new machinery and equipment have been per fected, new methods and processes have bee established. All these developments will be dis played and demonstrated at the world's great est oil show.

Among the interesting and valuable exhibit at the 1938 Exposition will be scores of pro duction equipment — drilling rigs; pumpin units; steam, gas, gasoline, diesel and electri power units. Every new creation and improve ment in equipment and supplies will be displaye —most of them under actual working condi tions in the oil field. Plan now to participate Write for full particulars.

TULSA, MAY 14-21, 1938

WM. B. WAY, General Manager
Tulsa, Okla., U.S.A.

INTERNATIONAL PETROLEUM EXPOSITION

ment campaign in the Vacuum field, Lea County.

Only 3 of the 16 separate prorated areas in Lea County are considered defined. The majority will experience steady development until productive limits are outlined. Prospects are favorable for the linking of the Cooper, Lynn and Eunice-Monument areas, as it is apparent that oil production is continuous, although the width of the oil structure varies to a marked degree. Developments the past year merged the Eunice and Monument areas. Similar condition prevails in the eastern Lea County sandy-lime belt, where the Langlie, Mattix, Skelly, Penrose and Hardy fields are destined to be consolidated as routine drilling progresses along a north and south trend.

Closing of the gaps between fields along the two separate oil production trends will account for the bulk of New Mexico's operations in 1938.

The Vacuum area bears the earmarks of a new field, although it was proved for commercial production in 1929. Due to its isolation from market outlets and apparent lack of flush production, it remained a single-well pool until 1937. Completion of outpost tests the past year revealed a large area capable of attractive high gravity production in the 4500-foot Permian lime, and the biggest drilling program for any single field in the state is to occur this year.

The Greater Artesia district, embracing a series of fields and pools in eastern Eddy County, added a shallow oil strike in 1937, and registered a growth in field operations as result of a direct pipe line connection and market outlet being provided by a major. This district will receive more activity in 1938.

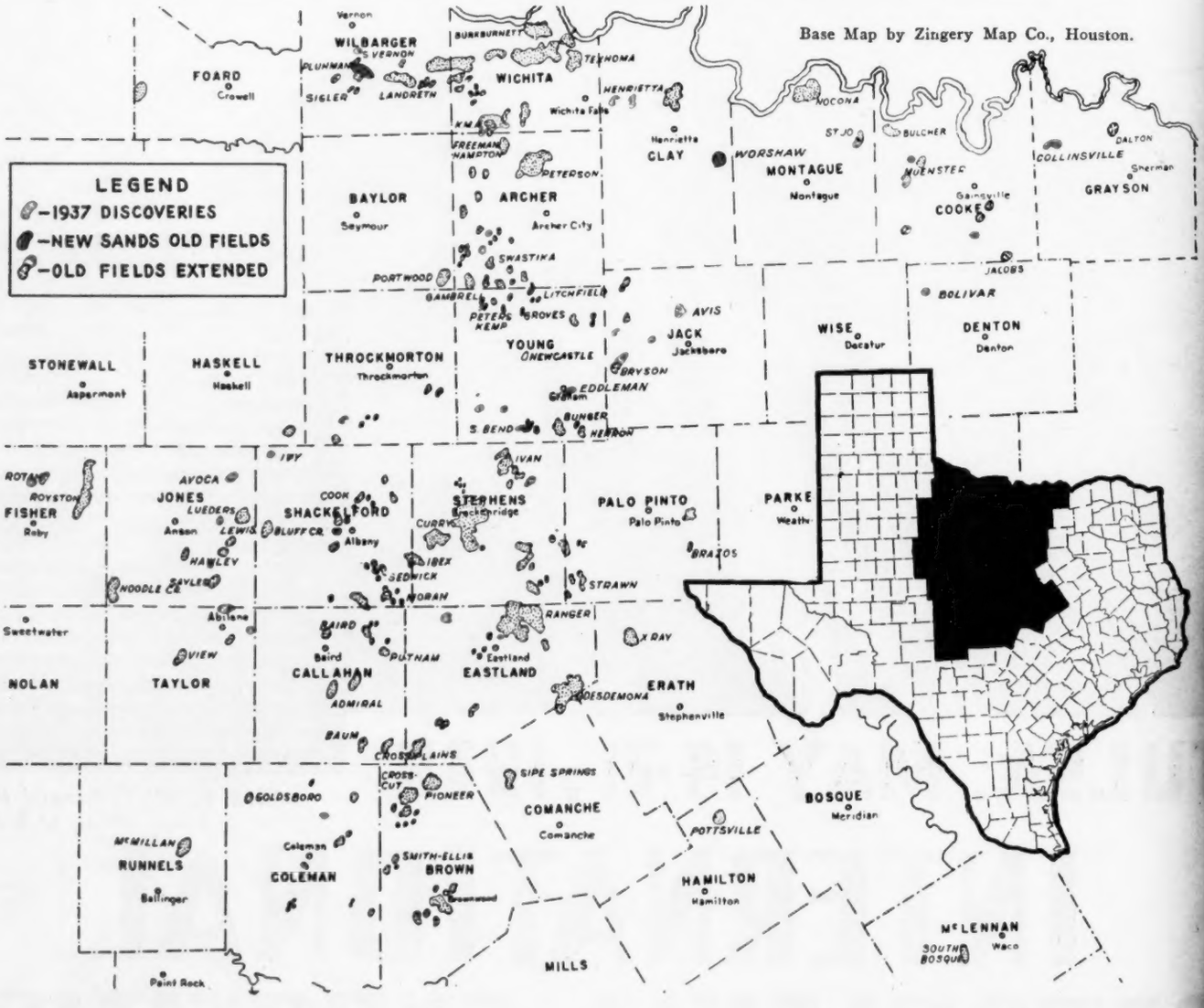
Revival of field activity in older oil and gas areas of the Texas Panhandle reached important proportions the past year. Moore, Carson, Gray and Hutchinson Counties shared in this work, which will likely taper off somewhat during the fore part of 1938.

Completion of the first commercial gasser in Hansford County points to eventual linking of the natural gas districts of Texas and Oklahoma panhandles. Single row of counties separating the two received considerable lease play, and exploratory tests are due to follow this year.

West Central Had Quota

Nominal quota of new discoveries credited to West Central Texas did not include any development that justifies the launching of an active drilling campaign. Semi-

K-M-A Lead North and West Central Texas Discoveries



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Deeper Sands Feature North Texas 1937 Strikes

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
?	Archer	T. H. Peery-W. C. Woody-Young's W. Duckworth 1, Blk. 7, J. W. Harris C. R. sub-division	Cisco series	1404	35	36	Field
?	Archer	M. L. Threet et al's M. A. Collins 1, Blk. 33, L. M. Meade Pasture sub-division	Cisco series	1458	77	37	Field
Edrington	Clay	Bridwell Oil Co's. H. C. Edrington 1-a, Sec. 24, BBB&C Ry. Sur. A-898	Cisco series	1115	18	35	Field
Shumake	Clay	Sussex Oil Corp's. C. J. Shumake 1, Lot 4, Bacon Sub-div.	Cisco series	1143	40	36	Field
Worsham	Clay	Walter H. Gant et al's C. M. Worsham 3, Sec. 38, Blk. 4 H. & T. C. Ry. Sur.	Strawn	3927	2000	45	Sand
?	Cooke	Kingery Bros. & Temple's H. Henscheid 1, F. P. Whiting Sur. A-1116	Cisco series	763	15	..	Field
?	Cooke	Whitfield, Pearson & Grimes' C. F. Bundy 1, P. P. Cady Sur. A-1239	Cisco series	2164	4	40	Field
Bolivar	Denton	Bolivar Drl. Co. et al's J. P. Knox 1, R. Howard Sur. A-542	Cisco series	1957	Gas	..	Field
Bolivar	Denton	A. A. Lander, Inc.'s E. W. Forrester 1, J. B. Barrough Sur. A-45	Cisco series	1652	66	40	Sand
Collinsville	Grayson	Rapp Drl. Co.-Denver Prod. & Ref. Co's. J. R. Singleterry 1-a, Chas. Quillen Sur. A-989	.....	4219	57	25	Field
?	Jack	G. M. Gillespie et al's O. Loving 1, Sec. 3345, T. E. & L. Co. Sur	Strawn	3211	15	37	Field
?	Jack	Hill & Hill's W. O. Hickman 1, Thos. M. League Sur. A-348	Strawn	3100	231	38	Field
Avis	Jack	Hanlon & Buchanan Inc's. Worthington 1-a, S. A. & M. G. Ry. Sur. A-589	.....	2369	80	37	Field
Bryson	Jack	Nelson Oil Synd's. J. A. Henderson 1-a, T. J. Walden Sur. A-814	.....	2811	209	36	Sand
Beck	Montague	O. V. Beck et al's C. L. Davenport 2, J. Fitch Sur. A-277.	Canyon	2296	102	..	Sand
Beck	Montague	Benton & Holmes' W. A. Reed 4-A, T. Robinson Sur. A-631	Canyon	2328	90	..	Sand
?	Throck-morton	G. C. Foster et al's R. H. Brown 1, Sec. 929, T. E & L. Co. Sur	Cisco series	918	Gas	..	Field
K-M-A	Wichita	Jack Kadane et al's C. A. Mangold 1, Blk. 38, P. Castleman Sur. A-35	Strawn	3752	4172	44	Sand
Rock Crossing	Wilbarger	Phillips Pet. Co's. Waggoner Est. 51, NEc H. & T. C. Ry. Sec. 44, Blk. 4	Canyon	3076	2214	39	Sand
King	Wilbarger	King Oil Co. et al's R. L. Castleberry 1, NWc H. & T. C. Ry. Sec. 68, Blk. 14	Cisco series	2188	288	39	Field
Eddleman	Young	A. R. Eppenauer et al's Eddleman Bros. 1, Sec. 1, T. & N. O. Ry. Sur.	Marble Falls	4243	Gas	..	Field
Eddleman	Young	Rathke Oil Co. et al's Johonson 1-A, H. F. Young Sur. A-1286	Marble Falls	4290	9	38	Sand
South Bend (W)	Young	Hickok Dev. & Prod. Co.-H. Reynolds' J. J. Martin 1, C. W. Townsend Sur. A-1642	Bend	3454	300	39	Sand
?	Young	S. S. Alexander Oil Corp's Mrs. L. D. Clark 1, Sec. 209, T. E. & L. Co. Sur	Cisco	851	47	39	Field
?	Young	C. E. Beavers et al's Cooper-Siebold 1, Sec. 81, T. E. & L. Co. Sur	Cisco	1195	48	37	Field
?	Young	Thos. D. Humphrey et al's S. R. Jeffery 1, Sec. 467, T. E. & L. Co. Sur	Bend	3932	300	38	Field
?	Young	C. V. Welch-Christie Bros.' A. B. Street 1, M. E. Criswell Sur. A-1772	Bend	3460	32	36	Field
?	Young	Yorktex Pet. Corp's. F. G. Burnett 1, G. W. Hill Sur. A-151	Marble Falls	4520	20	38	Field
?	Young	Henry Zweifel et al's E. S. Graham 1, Sec. 1, B. S. & F. Ry. Sur. A-44	Bend	3492	94	37	Field
?	Young	Henry Zweifel et al's W. R. Buford 1, John Saunders Sur. A-2511	Strawn	2620	300	37	Sand

wildcat in northwestern Eastland County contributed flowing production from the Ellenberger lime, but the erratic performance of this Ordovician member has caused lease owners to proceed cautiously with developments.

Shackelford County added a new shallow pool on the Ivy land, and late in 1937 this area was proved for oil production in the Canyon near the 3200-foot level. Mechanical difficulties prevented efficient completion of the deeper well. However, its performance indicates that the Canyon may be an important source of production for the first time in the county.

K-M-A Led North Texas

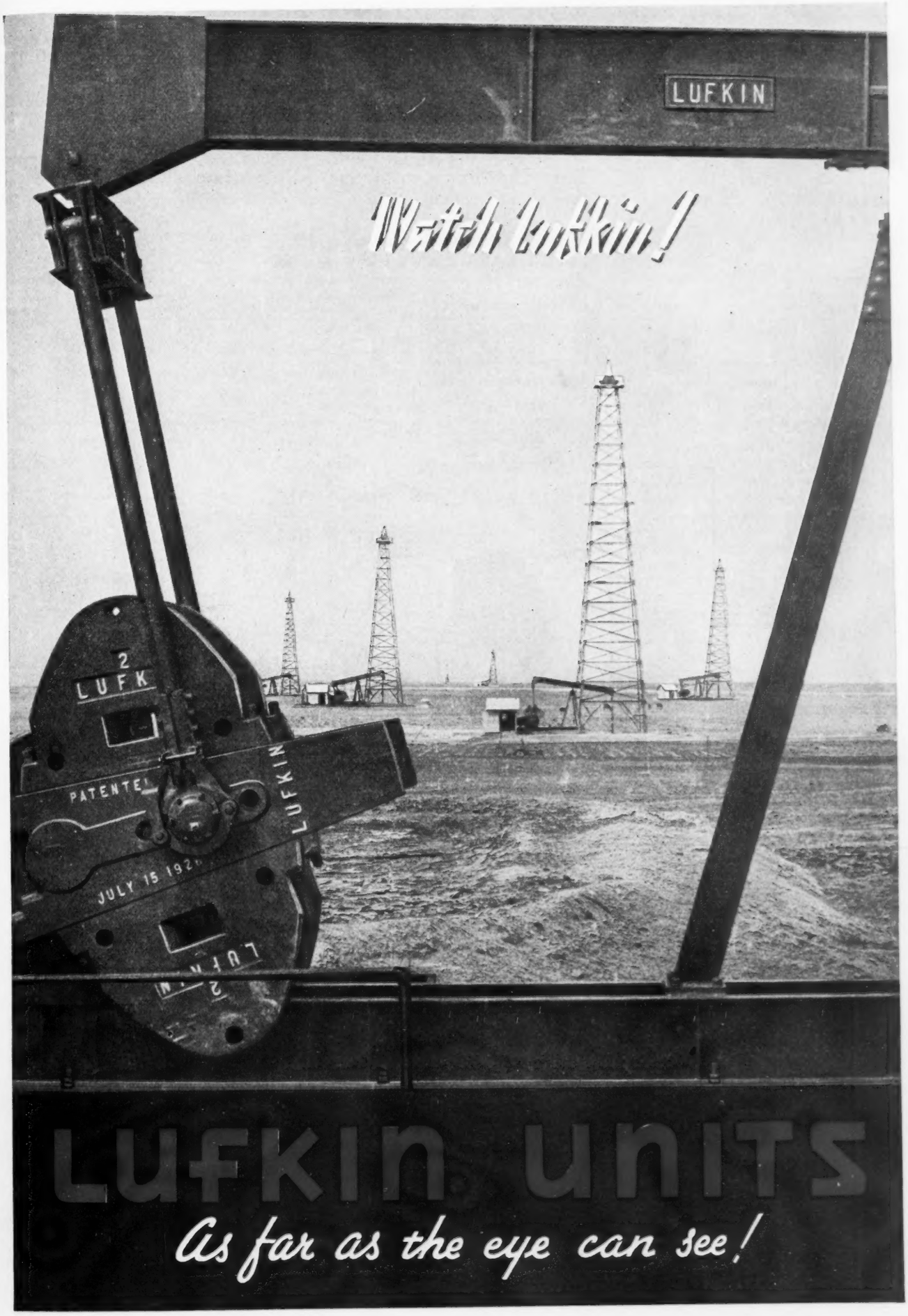
North Texas' outstanding contribution to 1937 developments arose from long deferred exploration of the K-M-A deep oil area, centering upon the Wichita-Archer County line. The 3800-foot Strawn formation has been on continuous production since July, 1931. It did not command attention until the completion of a series of extensions last summer. Major lease play and development followed the mid-November completion of a prolific well from true sand on the west flank of the large structure. Companies and operators, amply fortified with cash, moved in from East Texas and Oklahoma following this sand discovery, and gave the district a play that has not been equalled in more than a decade.

K-M-A field is destined to be

Six New West Central Texas Fields During 1937

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
?	Coleman	Anzac Oil Corp. et al's J. P. Morris 1-H, Sec. 77, John Harris Sur. A-374	Cisco	2221	Gas	..	Field
?	Coleman	Anzac Oil Corp. et al's J. P. Morris 1-J, Sec. 266, R. Rodriguez Sur.	Cisco	2003	222	36	Field
?	Eastland	Barnet Pet. Corp's. L. C. Downtain 1, Sec. 2, Blk. 6, E. T. Ry. Sur.	Strawn	1463	30	37	Sand
?	Eastland	Hickok Dev. & Prod. Co's. Van Parmer 1, C NW SW S. P. Ry. Sec. 477	Ellenberger	4025	1041	42	Field
Ivy	Shackelford	Owens-Snebold Oil Corp. et al's D. A. Ivy 1, NW SW SW Sec. 159, B. B. B. & C Ry. Sur.	Cisco	1938	352	35	Field
Ivy	Shackelford	Owens-Snebold Oil Corp. et al's H. B. Haterius 1, NE NE NE Sec. 163, B. B. B. & C. Ry. Sur.	Canyon	3215	275	38	Sand
?	Shackelford	Westexas Oil & Roy. Co's. E. S. Dawson 2	Cisco	1571	100	36	Field
?	Stephens	Barnett Pet. Corp.-C. F. Greenwood's Corbett 1, Sec.2, S. P. Ry. Sur. No. 3, A-179	Marble Falls	4006	82	38	Field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the most active drilling center in the Southwest, outside of the East Texas field, during the current year. Drilling of proved leases, aggregating about 30,000 acres, with important extensions probable, will be augmented by a major wildcat campaign in search of Strawn production elsewhere in Wichita County, and also in Archer, Clay and Wilbarger Counties.

Shallow oil horizons in Archer, Young, Wilbarger and Wichita Counties failed to contribute a normal quota of new discoveries the past year. Young County fared better with deep lime strikes and extensions that will assure active development this year. Wilbarger County added a new oil pool in the South Vernon district, and yielded its first commercial production from the Canyon zone in the old Rock Crossing field. The latter is classed as an important development, and will encourage deeper explorations, including the Strawn zone.

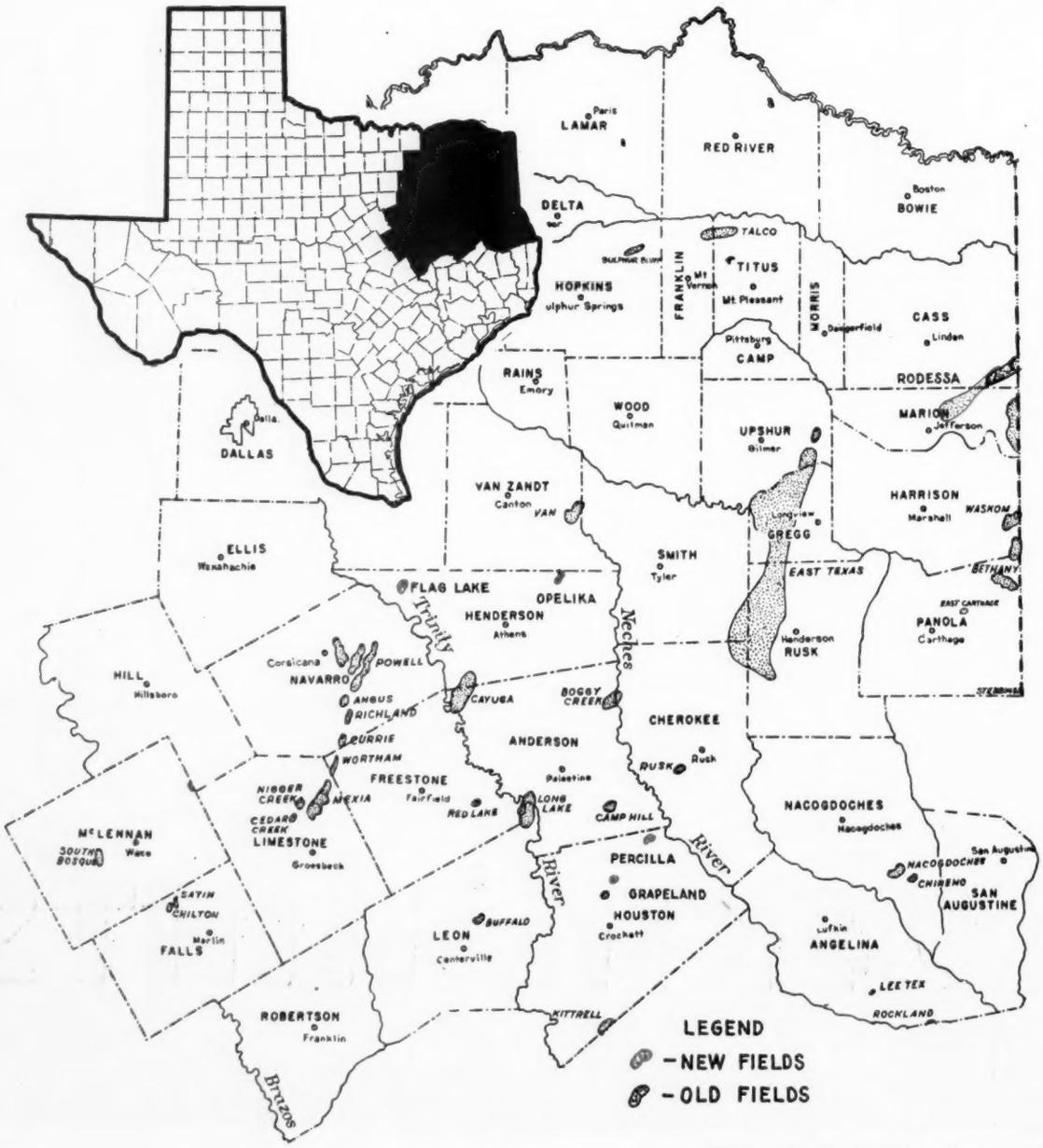
Denton and Grayson Counties contributed oil discoveries, but later development proved each of lit-

East Texas Discoveries During 1937

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Flag Lake	Henderson	S. Hunt, DeArman et al's A. R. Dillard 1, H. Jefferys' Sur.	Woodbine	3105	128	45	Field
Opelika	Henderson	Tide Water Associated et al's McElreath-Suggett 1-C, W. P. Wyche Sur.	Upper Glen Rose.	7195	8	38	Field
Opelika	Henderson	Tide Water Associated et al's McElreath-Suggett 1-C, W. P. Wyche Sur.	Lower Glen Rose.	7950	300	58	Sand
Grapeland	Houston	American Liberty Oil Co. et al's J. A. Bean 2, Wm. Burke Sur.	Woodbine	6074	80	44	Sand
Percilla	Houston	Placid Oil Co. et al's J. E. Elliott 1, J. M. Procella Sur.	Woodbine	5891	77	48	Field

Base map by Zingery Map Co., Houston.



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Fifteen New Fields and 18 New Sands Found in Texas Gulf Coast

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Green's Lake	Galveston	Sun Oil Co.'s Hughes 7, W. C. M. Baker Sur	Pliocene	2712	Gas	....	Sand
West Beaumont	Jefferson	Glenn H. McCarthy's Longe 3, H. Williams Sur	Oligocene	5380	456	29	Sand
Old Ocean	Brazoria	Harrison & Abercrombie's Bernard 4, C. Breen Sur	Frio	10293	280	52	Sand
Seabreeze	Chambers	Sun Oil Co.'s White 2—H. & T. B. Sec. 128	Frio	8755	Distillate	47	Sand
South Bay City	Matagorda	Hammond Exploration Co.'s Croker 1, E. Hall Sur	Frio	8194	169	41	Sand
Fannett	Jefferson	Gulf Oil Corp.'s Junker 7, W. H. Smith Sur	Frio	6535	667	40	Sand
Segno	Polk	Humble Oil & Refining Co.'s Kirby B-3, M. Victor Sur	Lower Cockfield	5340	480	36	Sand
Segno	Polk	J. K. Dorrance's Wing 4, I. & G. N. 15	Lower Cockfield	5243	610	34	Sand
High Island	Galveston	Stanolind Oil & Gas Co.'s Cade B-1, M. Dunman Sur	Frio	6695–6710	332	29	Sand
West Columbia	Brazoria	Sterling Oil & Refining Co.'s Phillips 1, Geo. Tennille Sur	Frio	5290	480	26	Sand
Hull	Liberty	Hamil & Smith's Barngrover 1, J. Devore Sur	Yegua	5705–5806	211	39	Sand
Clinton	Harris	Stanolind Oil & Gas Co.'s Moody 1, Reels & Trubrough Sur	Miocene	3600	....	....	Sand
Old Ocean	Brazoria	Harrison & Abercrombie's Carson 1, C. Breen Sur	Frio	10635–50	275	52	Sand
Spurger	Tyler	Republic Production Co.'s Hurd 4, N. Hurd Sur	Sparta	7700–04	520	45	Sand
North Cheek	Jefferson	Magnolia Petroleum Co.'s Phelan 2, S. Stivers	Frio	8665–82	670	43.5	Sand
Segno	Polk	Gulf Oil Corp.'s Wing 8, I. & G. N. No. 14	Saline Bayou	6261–64	722	44.5	Sand
Orange	Orange	Tillery & Ryan's Chesson 1, Wm. Dyson	Frio	5928–46	736	35.3	Sand
Port Neches	Orange	Texas Co.'s Starks 6, M. E. Hall Sur	Frio	5944	552	38.4	Sand
Labelle	Jefferson	Sun Oil Co.'s Hebert Broussard Z, W. B. Burton Sur	Marginulina	8211–18	48	38	Field
Sandy Point	Brazoria	Henry DeArman's Fite 1, D. Talley Sur	Marginulina-Frio	6489–6501	47	39	Field
Five Corners	Wharton	*Texas Co.'s Pierce Estate B-5, T. Caldwell Sur	Frio	5553	80	25.3	Field
South Cotton Lake	Chambers	*Salt Dome Oil Corp.'s Lawrence C-1, S. Barrow Sur	Marginulina-Frio	6492–6503	600	32	Field
Spurger	Tyler	Republic Production Co.'s Hurd 2, N. Hurd Sur	Claiborne Age	7641	408	43	Field
Blue Basin	Wharton	Texas Co.'s Kluck 1, J. Hyland Sur	Miocene	4642–57	Gas	....	Field
Bammel	Harris	Hamil & Smith's Zapp 1, J. Farwell Sur	Cockfield	6205–11	72	52	Field
Palacious	Matagorda	Glenn H. McCarthy's Foley Land 1, L. Goodwin Sur	Frio	7830–80	175	53	Field
North Cheek	Jefferson	Magnolia Petroleum Co.'s Phelan 1, S. Stivers Sur	Frio	8350–8460	432	53	Field
Wilson Creek	Matagorda	United North & South Development Co.'s Stoddard, B. Cotton Sur	Frio	9925–78	168	52	Field
Friendswood	Harris	Humble Oil & Refining Co.'s Settegast 1, Perry & Austin Sur	Frio	5811–6009	650	30	Field
Hitchcock	Galveston	Maco Stewart's Fee 1, J. Spillman Sur	Miocene	5134–40	60	32	Field
Call	Newton	Houston Oil Co.'s Peavy Moore 1, H. & T. C., Sec. 42	Cockfield	6908–19	800	29	Field
Seabreeze	Chambers	*Sun Oil Co.'s Acorn 3, H. & T. B., 103	Frio	8415–40	644	40	Field
McFaddin	Jefferson	Shell Petroleum Corp.'s McFaddin 1, S. A. Pace Sur	Miocene	5293	360	....	Field

* First commercial oil wells.

tle value. Montague County added deeper oil zones in older fields. Clay County is to be active this year on shallow drilling by reason of new pools, and the proving of the old Worsham field for Strawn production points to a gain in development without the interest stirred up by the K-M-A boom.

Jack County experienced an exceptionally active year through the development of the Bryson district, which is made up of a series of oil pools, all closely related. New discoveries to the north, northeast and east have not been explored sufficiently to determine if they can support a major drilling campaign.

East Texas Play Fell Short

The East Texas Woodbine basin failed to maintain its crude reserve position, and new discoveries in 1937 were not of sufficient importance to support a drilling program. The East Texas field dominated the picture, with routine drilling on inside locations accounting for 2666 tests. The productive limits of this giant crude reserve remained unchanged. Due to the method of proration, drilling will continue until new wells are not considered good investments.

Discovery of three Woodbine oil areas in 1937 did not attract the usual followup drilling. The Flag Lake faulted pool, northwestern Henderson County, uncovered after plugging back a Trinity formation failure, will receive a nominal quota of new tests this year. Nearby dry holes tend to restrict the productive limits.

Houston County added two small oil discoveries, but an abundance of water accompanied the oil flow from each after plugging off the lower section of the Woodbine. The Grapeland 3-well gas area yielded a nominal oil well on the east flank of the large structure, and no new development is scheduled. The Percilla pool, located in northeastern Houston County, will be more extensively explored this year. Performance of the first group of tests will determine the drilling policy of lease owners in the area.

Prospecting in the lower Trinity formation reached large scale proportions the past year. Only encouragement for production from this deep zone occurred at Opelika, Henderson County, where the first test made an 8-barrel flowing oil well from partially junked hole. Production was found in stray lime between the anhydrite sections. A second project missed this oil horizon, but succeeded in making a prolific gas and distillate well in the lower Glen Rose. However, it has no market value unless natural gas companies, who are already abundantly supplied with gas, can be induced to extend their lines into the area. More prospecting will be carried on at Opelika to try for oil production.

Cayuga and Long Lake, comparatively new Woodbine oil and gas fields, received a nominal volume of drilling the past year due to extensions and competitive drilling. Curtailment of proration quotas will adversely affect drilling this year.

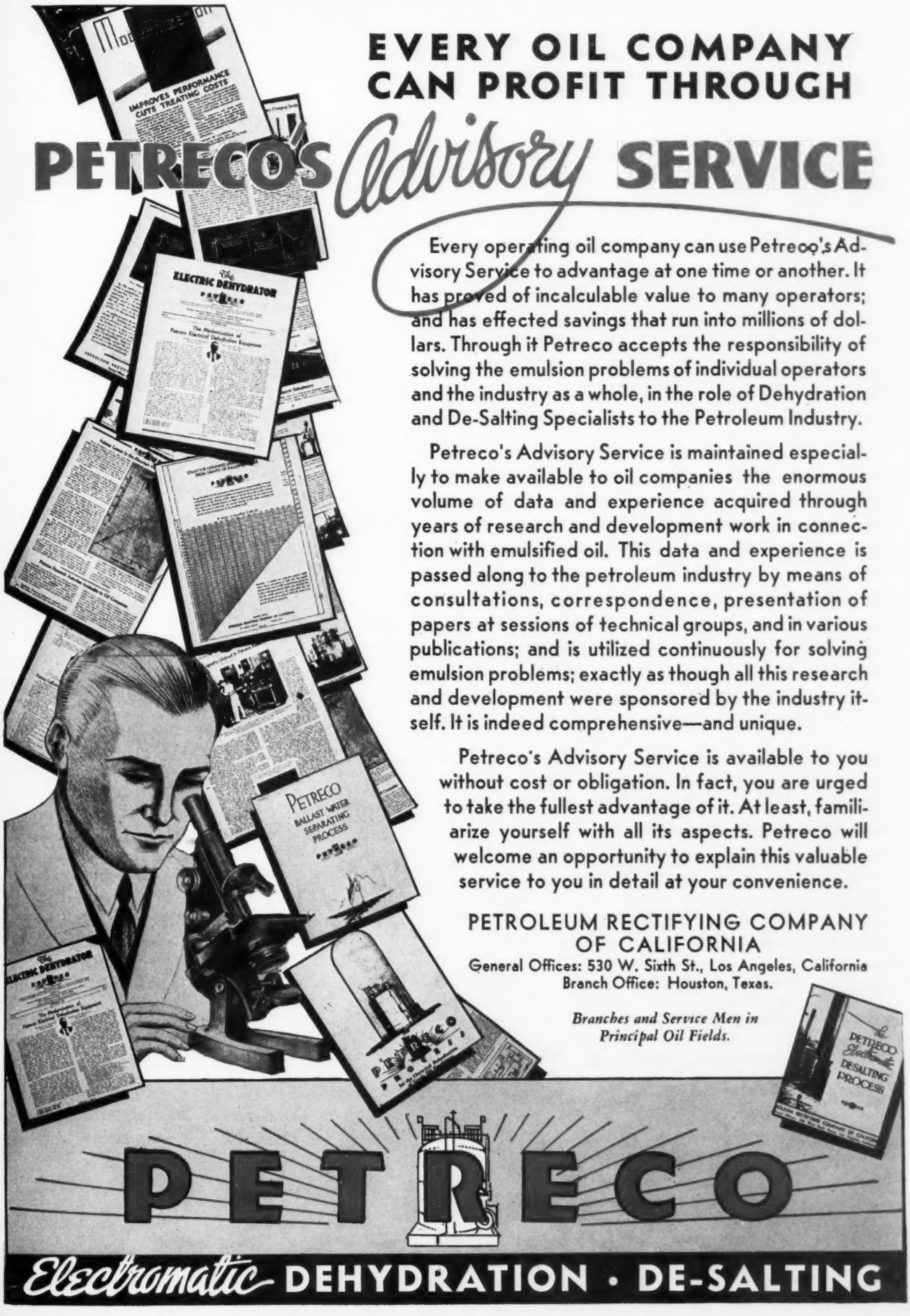
Talco field, first Paluxy oil strike, reached its peak level on development the past year, and was materially expanded to the west into Franklin County. Market difficulties and water encroachment into all parts of the long faulted field point to a sharp decline in field work. Sulphur Bluff field, Hopkins County, was defined the past year, and affords comparatively few proved locations to be drilled.

Extension of Rodessa into Cass County, Texas, and discovery of the Jefferson field in adjoining Marion County, were outstanding in East Texas last year.

Texas Gulf Coast Outlook Enhanced

The upper Texas Gulf Coast had a good year in 1937 and is expected to do likewise in 1938. One large field, Friendswood, was found in the 15 new fields opened in 1937. There will be considerable drilling in this area during 1938.

Drilling throughout the district has been increasing in recent years, and this is expected to be the case during 1938. At the end of 1937, there were approximately 35,000 acres considered as being proven



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for production that had not been drilled. In addition there will be around 125 wildcats drilled.

In addition, operating firms continue to take geophysical and commercial blocks in large numbers. Some of these carry drilling obligations during 1938.

Geophysical activity in the Texas Gulf Coast was at an all-time high during the past year, and it can be expected to continue active during 1938. This is particularly true of the Conroe trend.

There is a definite trend toward deeper drilling in the region. During the 12 months of 1937 an increasing number of wells were carried below 10,000 feet, and the year saw the opening of the first production below that horizon.

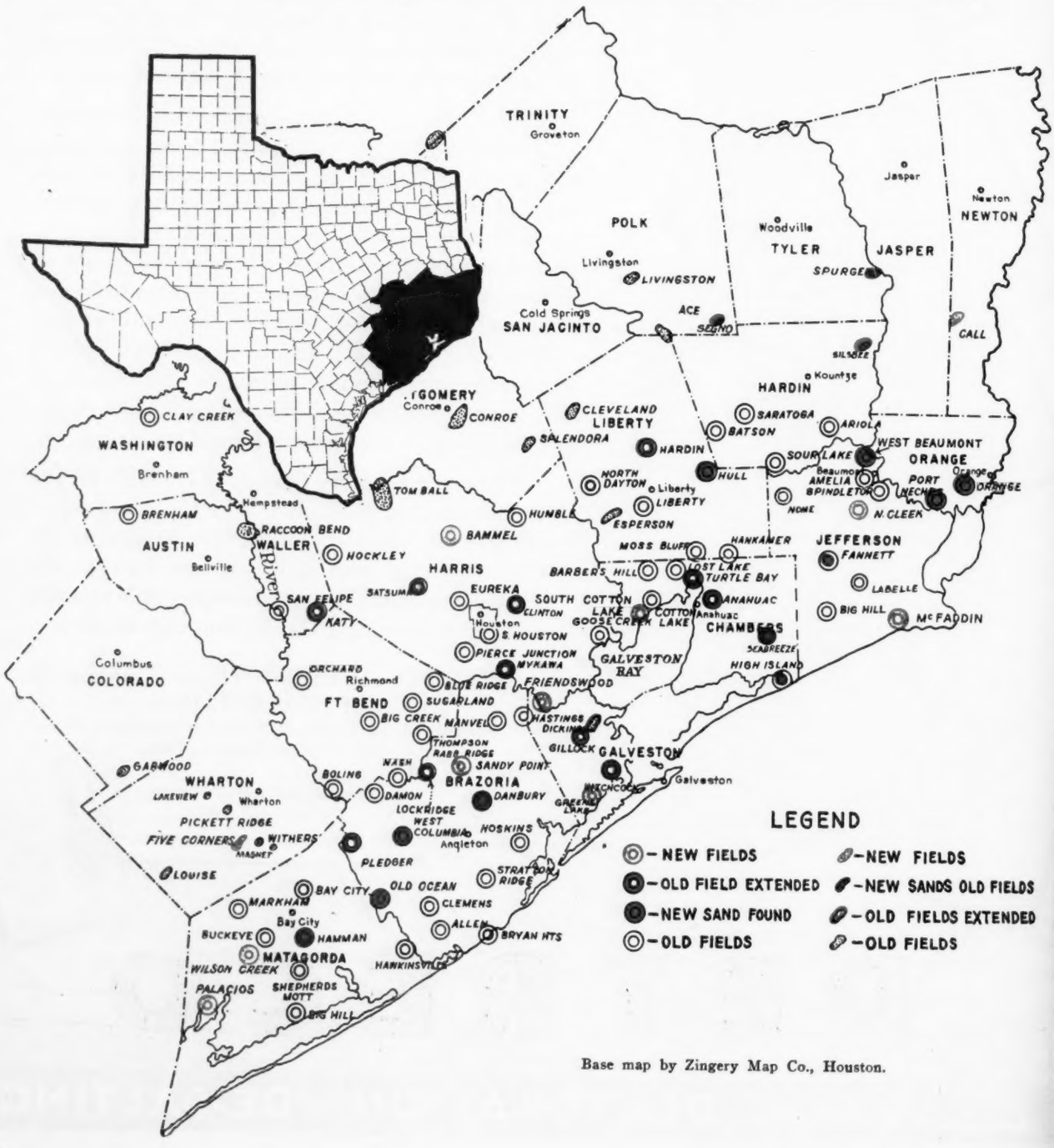
South Louisiana Looks Better

South Louisiana or the Louisiana Gulf Coast assumed a more important role in the United States oil picture last year, and is expected to further enhance its position in 1938. Last year it reached an all-time peak in drilling and discoveries. Prospects for 1938 look even brighter from a drilling standpoint.

Wells continue to be carried to greater depths in the region. Several producing fields below 10,000 feet were opened during 1937, the deepest at 10,905 feet. One well in the district produced oil at 11,630 feet for a time, but intrusion of salt water caused it to be plugged back. It is felt that 11,000-foot production, and possibly 12,000-foot production, may be opened in 1938.

Further substantiating the belief that there will be more drilling in

Friendswood Most Important of Numerous Texas Coast Discoveries



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South Louisiana during 1938 is the discovery of production in the Sparta formation on the Conroe trend. This is the deepest geological horizon to produce oil as yet.

There were 15 new oil fields discovered, and three new salt domes, in South Louisiana last year. It is calculated that these added materially to the region's crude reserves, although production was at an all-time peak.

North Louisiana Boosted

While important extensions were made to the Rodessa field, North Louisiana had other developments that ranked high during 1937. These forecast an active year during 1938.

The Lisbon field in Claiborne and Lincoln parishes may be the highlight of 1938. With satisfactory adjustment of pipe line outlets, the year may see the drilling of 400 wells. Acid is used in about 85 percent of the wells. While only eight wells of the 165 producing wells are on artificial lift, at least 100 may be placed on the lift by the end of 1938. Two theories of structure at Lisbon give a wide variance to forecasts. One is that there is no structure as the term is generally understood, but that it is a bowl affair with undulations of saturation that make for an al-

Six of Louisiana Gulf Coast's 1937 Discoveries Below 10,000 Feet

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Cankton	St. Landry..	Superior Oil Producing Co.'s Savoie 2, 26-8s-3e	Miocene	5320-23	28	28	Field
Abbeville	Vermilion...	Continental Oil Co.'s Herbert 1, 20-12s-3e	Miocene	7666-75	25	Dist.	Field
Gibson	Terrebonne.	Shell Petroleum Corp.'s Realty Operators 1-B, 18-17s-15e	Miocene	9493	781	38	Field
Lirette	Terrebonne.	Humble Oil & Refining Co.'s Ellender 1, 23-19-s-19e	Miocene	10525	480	37	Field
Lakelong	Lafourche..	Fohs Oil Co.'s State 1, 65-17s-19e	Miocene	9406	890	38	Field
Venice	Plaquemines	Tide Water Associated Oil Co.'s Manhatten Fruit 3, 26-21s-30e	Miocene	7208	216	38	Field
Horseshoe Bayou	St. Mary...	The Texas Co.'s Horseshoe Bayou 1, 40-17s-9e	Miocene	10873	1152	39	Field
Bayou Des Allemands	St. Charles.	Amerada-Louisiana Land & Exploration Co.'s State 1, 13-15s-20e	Miocene	6830	569	36	Field
Bay St. Elaine	Terrebonne.	The Texas Co.'s State 14, 20-22s-18e	Miocene	5643	1004	29	Field
South Elton	Jeff Davis..	Stanolind-Amerada's Calcasieu Natl. Bank 2-B, 28-7s-3w	Oligocene	8965	128	52	Field
Villa Platte	Evangeline .	Continental Oil Co.'s Tate 1, 44-3s-2e	Sparta	9035	177	52	Field
North Crowley	Acadia.....	Humble Oil & Refining Co.'s Federal Land Bank 1, 34-8s-1e	Oligocene	8102	672	36	Field
Potash	Plaquemines	Humble Oil & Refining Co.'s Orleans Levee Board 11, 10-18s-15e	Miocene	696	25	16	Field
Quarantine Bay	Plaquemines	Gulf Oil Corp.'s Quarantine Bay QQ3, 17-19s-17e	Miocene	8177	845	32	Field
Bateman Lake	St. Mary...	The Texas Co.'s State 1, 21-16s-12e	Miocene	10905	350	..	Field
Jennings	Acadia.....	Superior Oil Producing Co.'s Jennings Heywood 1, 41-9s-2w	Oligocene	6520	517	39	Sand
Lake Pelto	Terrebonne.	The Texas Co.'s State 16. 17-23s-18e	Miocene	6088	800	37	Sand
Sulphur	Calcasieu...	Union Sulphur Co.'s Fee 821 (wo), 9-9s-10w	Oligocene	5512	500	..	Sand
Gillis	Calcasieu...	Union Sulphur Co.'s Barbe 12, 1-9s-8w	Oligocene	9101	Gas	..	Sand
Cankton	St. Landry..	Superior Oil Producing Co.'s Savoy 2, 26-8s-3e	Miocene	5801	9	33	Sand
Lafitte	Jefferson...	The Texas Co.'s Milling 1, 20-17s-24e	Oligocene	10022	643	41	Sand
Lafitte	Jefferson...	The Texas Co.'s Rigoletts 5, 29-17s-24e	Oligocene	10110	1636	34	Sand
Dog Lake	Terrebonne.	The Texas Co.'s State 4. 5-22s-16e	Miocene	6870	1516	40	Sand
Valentine	Lafourche..	Pan-American Production Co.'s Harang 2-A, 8-17s-20e	Miocene	5390	624	32	Sand
Jennings	Acadia.....	Superior Oil Producing Co.'s Leckelt 2, 42-9s-2w	Miocene	5790	148	39	Sand
Big Lake	Cameron...	Union Sulphur Co.'s J. O. Herbert 1, 18-12s-8w	Oligocene	9060	600	39	Sand
Darrow	Ascension...	Humble Oil & Refining Co.'s Landry 1, 34-10s-2e	Oligocene	6995	744	39	Sand
Valentine	Lafourche..	Pan-American Production Co.'s Harange 5, 8-17s-20e	Miocene	5886	641	33	Sand
Charenton	St. Mary...	Pan-American Production Co.'s South Coast Corp. 1, 30-13s-10e	Miocene	4980	600	31	Sand
Valentine	Lafourche..	Pan-American Production Co.'s Harang 7, 8-17s-20e	Miocene	5050	312	..	Sand
Charenton	St. Mary...	Pan-American Production Co.'s Veeder-Hunt 1, 30-13s-10e	Miocene	3948	240	..	Sand
Jeanerette	St. Mary...	Herton Oil Co.'s Banta Roanes 1, 40-13s-9e	Miocene	10292	180	36	Sand
Abbeville	Vermilion...	Continental Oil Co.'s Brookshire 1, 66-12s-3e	Miocene	7890	480	41	Sand

Base map by Zingery Map Co., Houston.

Buyers Guide to OKEH RUBBER & STEEL Products

FACTORY AND SALES HEADQUARTERS FOR OKEH PRODUCTS

Where - **COMPOSITE CATALOG**

When - **1938 EDITION**

What - **OKEH PRODUCTS**

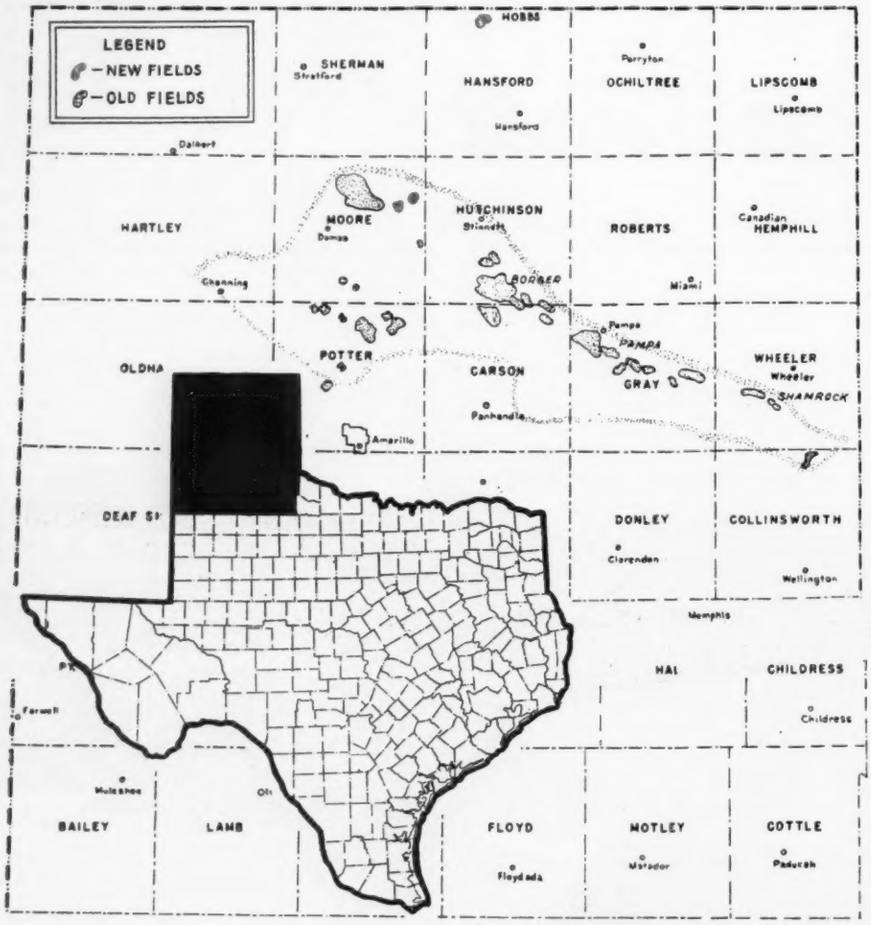
Catalog 38
FOR THE OIL INDUSTRY

TEXAS RUBBER & SPECIALTY CORP.
Houston, Texas

Texas Panhandle Discoveries During 1937

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Hobbs.....	Hansford...	Hobbs Oil Corp.'s Pearson-Hitch 1, G. H. & H. Ry. Sec. 290, Blk. 2.....	Granite Wash....	2864	Gas	.....	Field
	Moore.....	Magnolia Petroleum Co.'s E. C. Britain 2, T. & N. O. Sec. 185, Blk. 3-T.....	Granite Wash....	3415	35	34	Sand
	Moore.....	Phillips Petroleum Co.'s Ebling-McDowell 1, A. B. & M. Sec. 18, Blk. M-16.....	Granite Wash	3214	367	37–38	Sand



Base map by Zingery Map Co., Houston.

most unlimited producing area. The other with the highest point of structure located in Section 13-21n-5w, gives a possible producing area of 20,000 to 25,000 acres. At present 5000 acres have actually been proven productive.

From a recovery standpoint the most important discovery in 1937 may be the finding of production in the lower Marine (Bodcaw) horizon at Cotton Valley. This 8000-foot zone so far has had an average saturation horizon of 20 feet, but a 400-foot section carries a series of producing sands. To date there are 27 producing limits and no failures. It is anticipated that 100 wells will be drilled during 1938. Some engineers estimate this horizon as the greatest reserve in North Louisiana. At present an 80-acre spacing program is being used.

Extensions to the Rodessa field were chiefly confined to that finally carried over into Arkansas. The productive area of the North Louisiana side eventually will be about 10,000 acres. Approximately 100 wells in this region are now using some artificial method of lifting, and probably 300 wells will be on lift before the end of the year.

The Arkansas nose of Rodessa, known as the Capps area, apparently will not be extensive in area, probably totaling 1500 acres.

The producing limits of the Cass County, Texas, side of Rodessa has been practically defined except for a nose just west of the northwest point from the Louisiana side. However, Marion County, particularly at the Jefferson end, remains undefined. A series of lateral faults paralleling the main Rodessa fault is a factor that makes it difficult to predict what eventual recovery at Jefferson will be. Marion County will have the bulk of the drilling in the Texas side of Rodessa during 1938.

All in all Rodessa's limits may spread in the three states to as high as 30,000 acres, which based on an average of 8000 barrels recovery per acre would give an ultimate yield of 240,000,000 barrels. However, most engineers think this a conservative figure.

There were several smaller discoveries in North Louisiana during 1937. These combined with the larger fields mentioned will cause an active wildcatting campaign in 1938. Of particular significance is the likelihood of deep testing in present producing areas, such as at Pine Island, Bellevue, Homer, Haynesville, Lisbon, etc.

Arkansas Active Again

Three new fields were discovered in Arkansas in 1937, marking the revival of this state as an important producer and point of activity. These discoveries have spurred leasing and geophysical exploration, and 100 wildcat tests may be drilled in the area during 1938. While the southern portion of the state will continue to be the chief center of interest, other parts are to see drills working also.

Geophysics played a big part in the comeback of Arkansas, being responsible for Buckner and Schuler. These are the two largest new fields found in Arkansas in many years. Schuler, first found productive in five lenses from 5559 to 6000 feet, later was found to carry 70 feet of saturated formation in the lower Marine below 7500 feet. It is estimated that from 6000 to 8000 acres may be found productive in the lower Marine and Permian formations, and that 100 to 200 wells may be drilled in the field during 1938. Buckner is to have a more conservative drilling campaign, as it will be located on a fairly solid block of Standard

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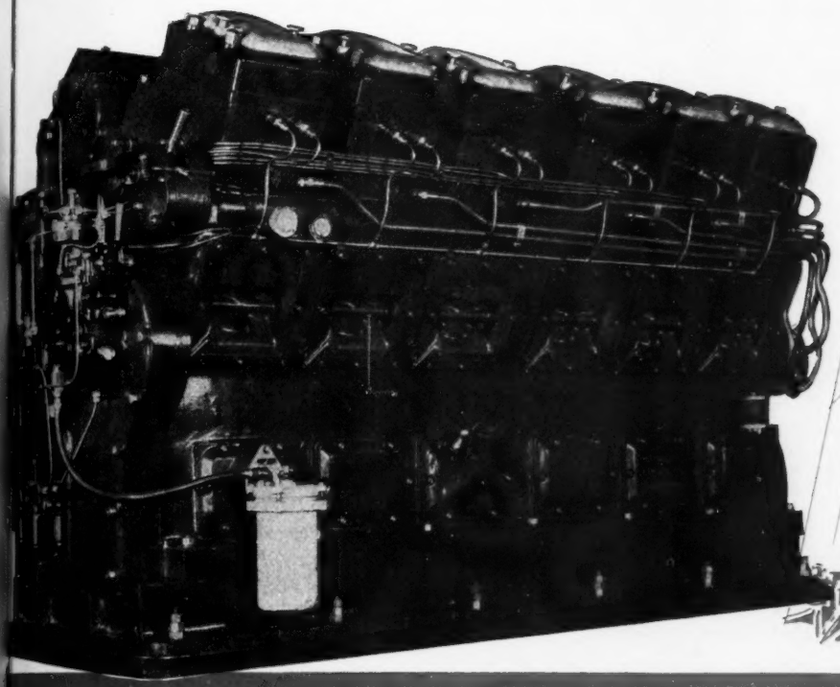

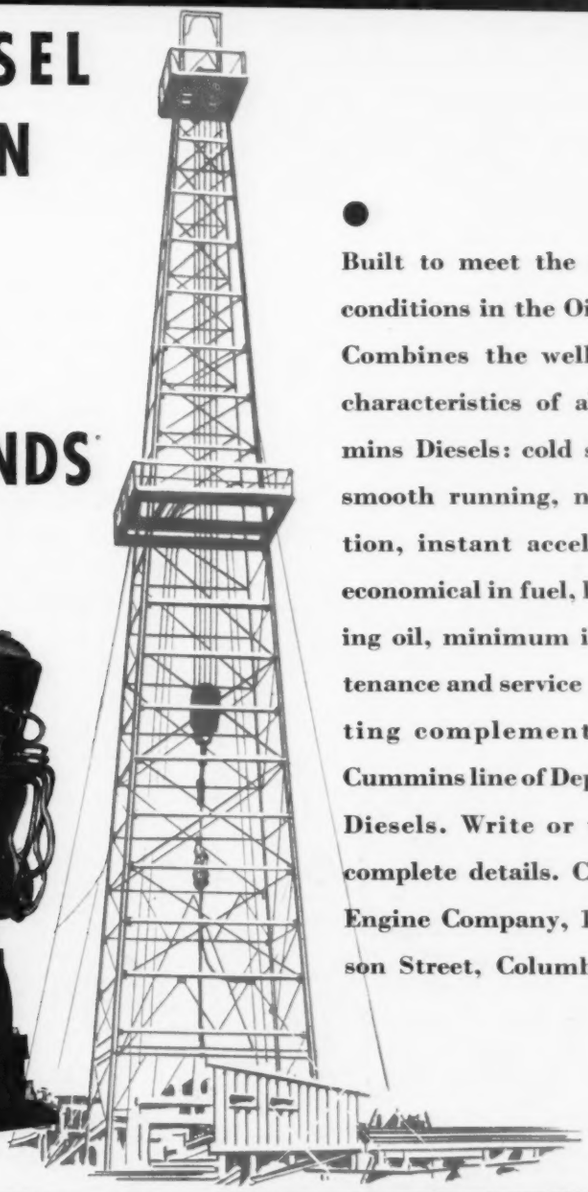

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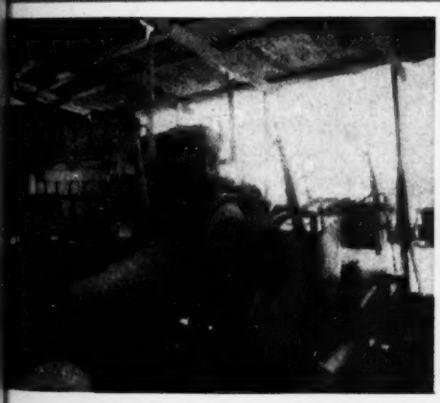

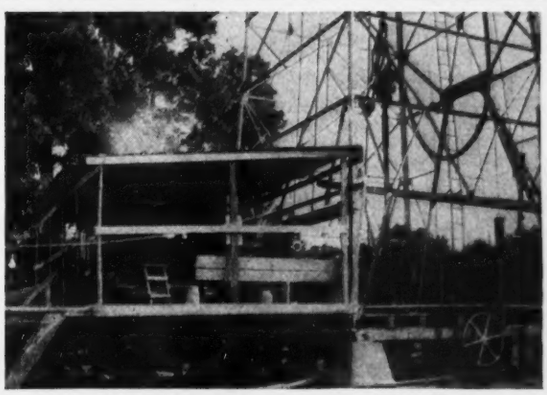

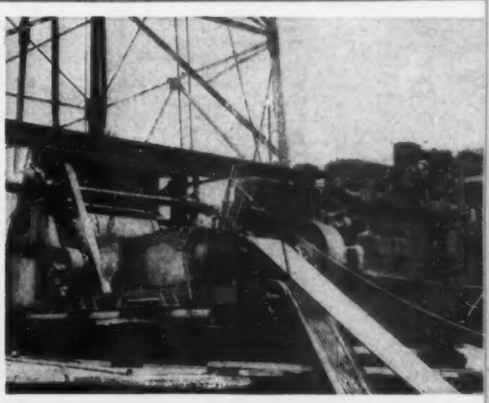

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Oil Company of Louisiana, unless it covers a very extensive area.

Another development of Arkansas in 1937 was the extension of Rodessa from Louisiana. This is covered in remarks on Louisiana.

The forecast for 1938 in Arkansas is for a much better year than has been experienced for some time.

Kansas Still "Hot"

Although Kansas failed to find as many new fields in 1937 as in the previous year, it ranked high in discoveries—being second in

1937 Discoveries Revive Arkansas

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Rodessa	Miller	W. L. McClanahan's Capps 1, 11-20-28	Glen Rose	6115	500	38	Field
Schuler	Union	Leon Oil Refining Co.'s Morgan 1, 18-18-17	Travis Peak	5559	300	38	Field
Schuler	Union	Edwin M. Jones' Marine 1, 17-18-17	Lower Marine	7550	1500	32	Sand
Schuler	Union	Lion O. R. Co.'s Morgan A-1, 18-18-17	Permian	7630	600	Dist.	Sand
Buckner	Columbia	Standard of Louisiana's McKean 1, 8-16-22	Permian	7258	350	32	Field

Base map by Zingery Map Co., Houston.

North Louisiana Added Five Fields in 1937

(Includes new fields and new sands in old fields)

Field	Parish	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Lisbon	Claiborne	E. T. Oakes et al's Patton 2, 1-20n-5w	Basal Glen Rose	5373	200	38	Field
Grogan	De Soto	Pullman Oil Co. et al's Ramsey A-1, 36-11n-11w	Tokio	2961	150	32	Field
Ben Creek	Bienville	Seaboard Oil Corp.'s McGee 1, 3-16n-6w	Travis Peak	5880	Dist.	....	Field
Ruston	Lincoln	Lide & Greer's Causey 1, 32-19n-2w	Glen Rose	5822	Dist.	....	Field
Cotton Valley	Webster	Ohio Oil Co.'s Bodcaw 1, 28-21-10	Lower Marine	8189	Dist.	....	Sand

NEW WORLD'S RECORD

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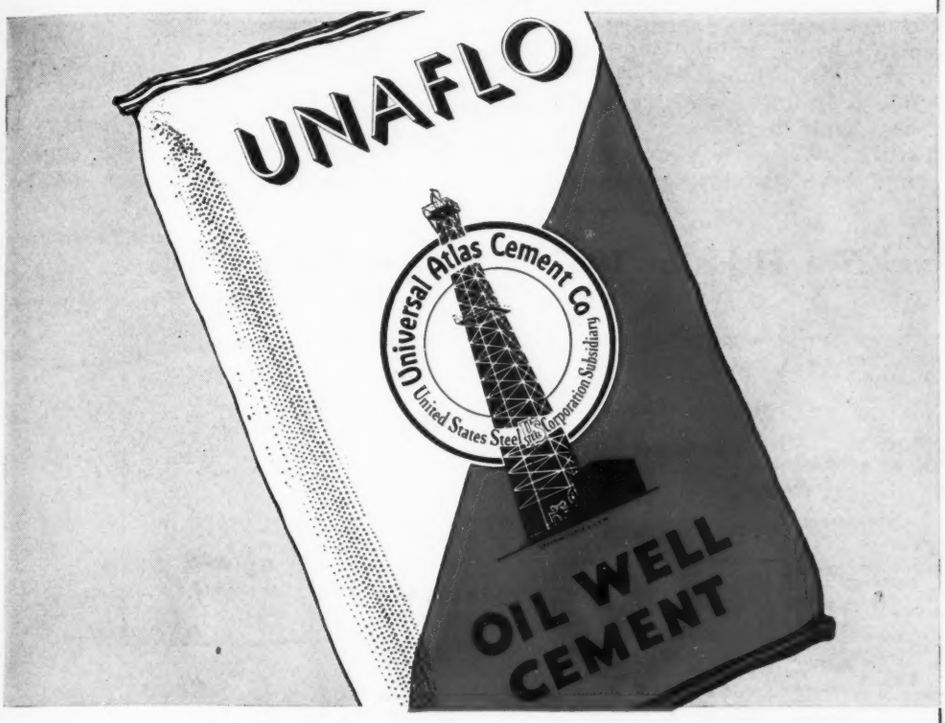

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Total depth of well—11,342 feet. Bottom hole temperature—236° F.

1500 bags of Unaflo mixed 15.8 pounds per gallon with two Halliburton trucks.

Mixing time—35 minutes.

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Pump-down time—18 minutes and 15 seconds.

Plug landed with maximum pump pressure of 1400 pounds per square inch.

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number to Southwest Texas. While an even fewer volume of new strikes may be recorded in 1938, it should still rank high in this respect.

Also, drilling activity in the state should be high. In fact there are possibilities that it may become the second most active area within a few years—if not in 1938. Drilling inside locations in proven regions, and continued experimentation in water-flood and gas repressuring projects, plus wildcats, will likely keep all areas at the same high peak of activity enjoyed in 1937.

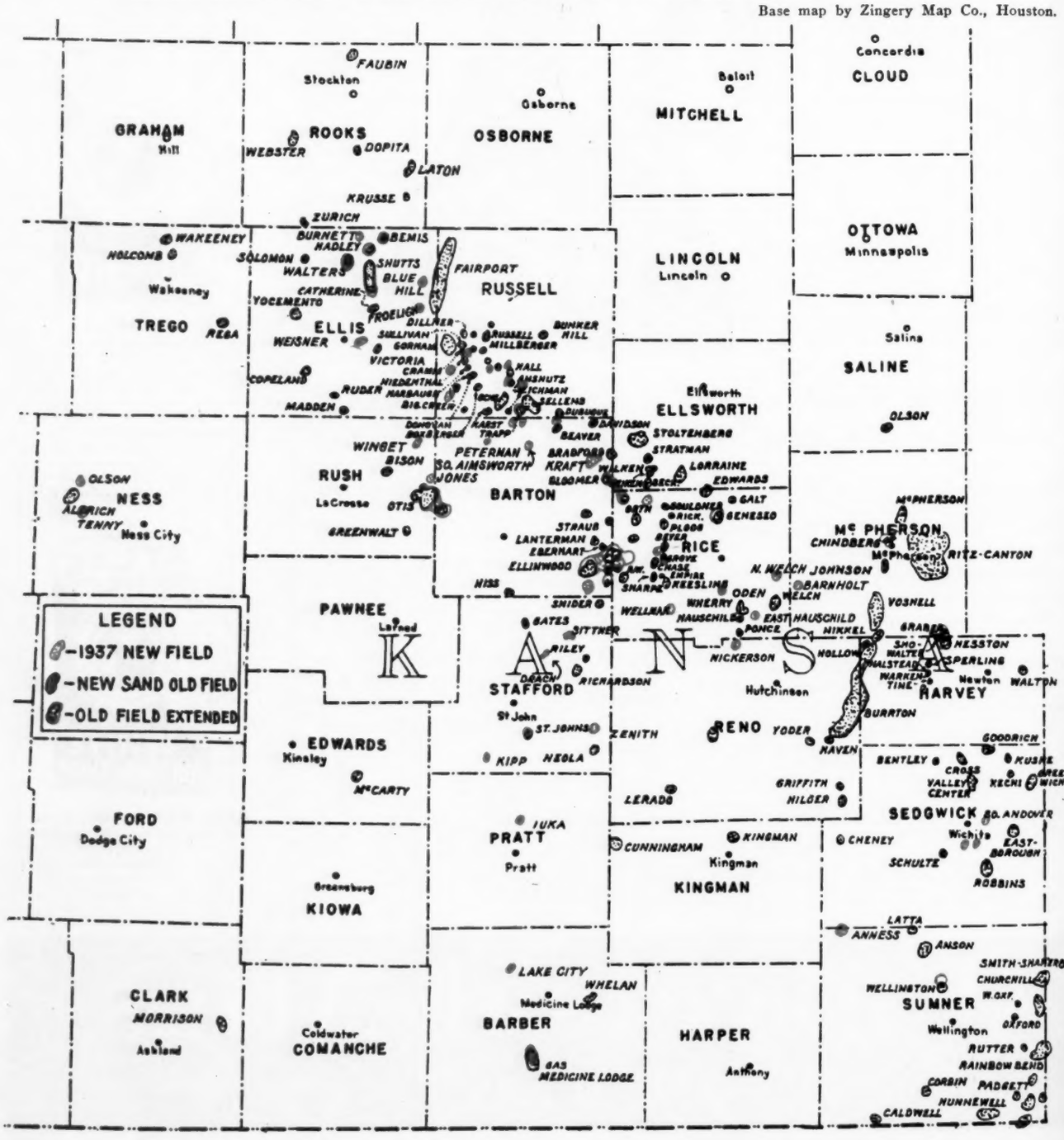
However, the state has one serious obstacle. That is the pipe line situation in Western Kansas. Discoveries during the past three years has found more production than most of the crude purchasers desire to take. Any new strikes would add to the burden. This condition may result in a retarding of drilling, particularly wildcats during the year.

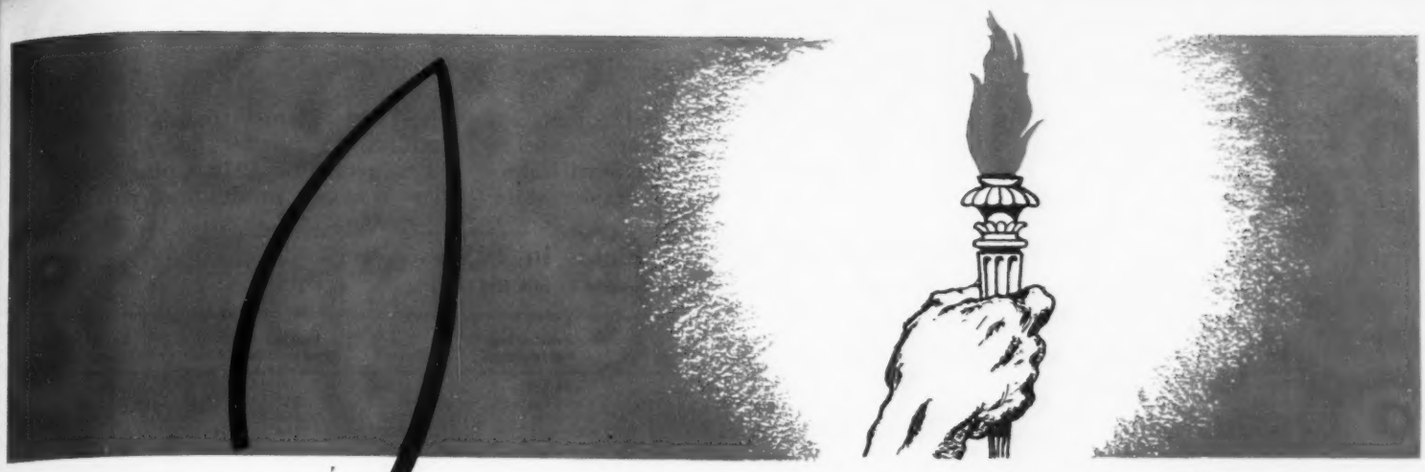
Western Kansas continues to be the searching ground, and is certain to be during 1938. Most profitable play last year centered in the south-central portion of Western Kansas, mostly in Stafford County, and continues pushing toward the west. While other counties exceed the latter in number of new fields found, these in Stafford did more to encourage further exploration to the west than any other development.

Many oil men are looking to counties at the southern edge of the western portion for develop-

Most of Kansas' New Fields in 1937 in Western Part of State

Base map by Zingery Map Co., Houston.





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ment during 1938, principally Barber and Harper counties, which are at the approximate south end of the central Kansas uplift, and Clark County in the Dodge City Basin. Others expect counties along the extreme northern boundary, next to the Nebraska state line, and along the Ellsworth Arch, to be further tested.

Prospects for 1938 make it appear Kansas' production will be

Kansas Finds 57 New Fields in 1937

(Includes new fields and new sands in old fields)

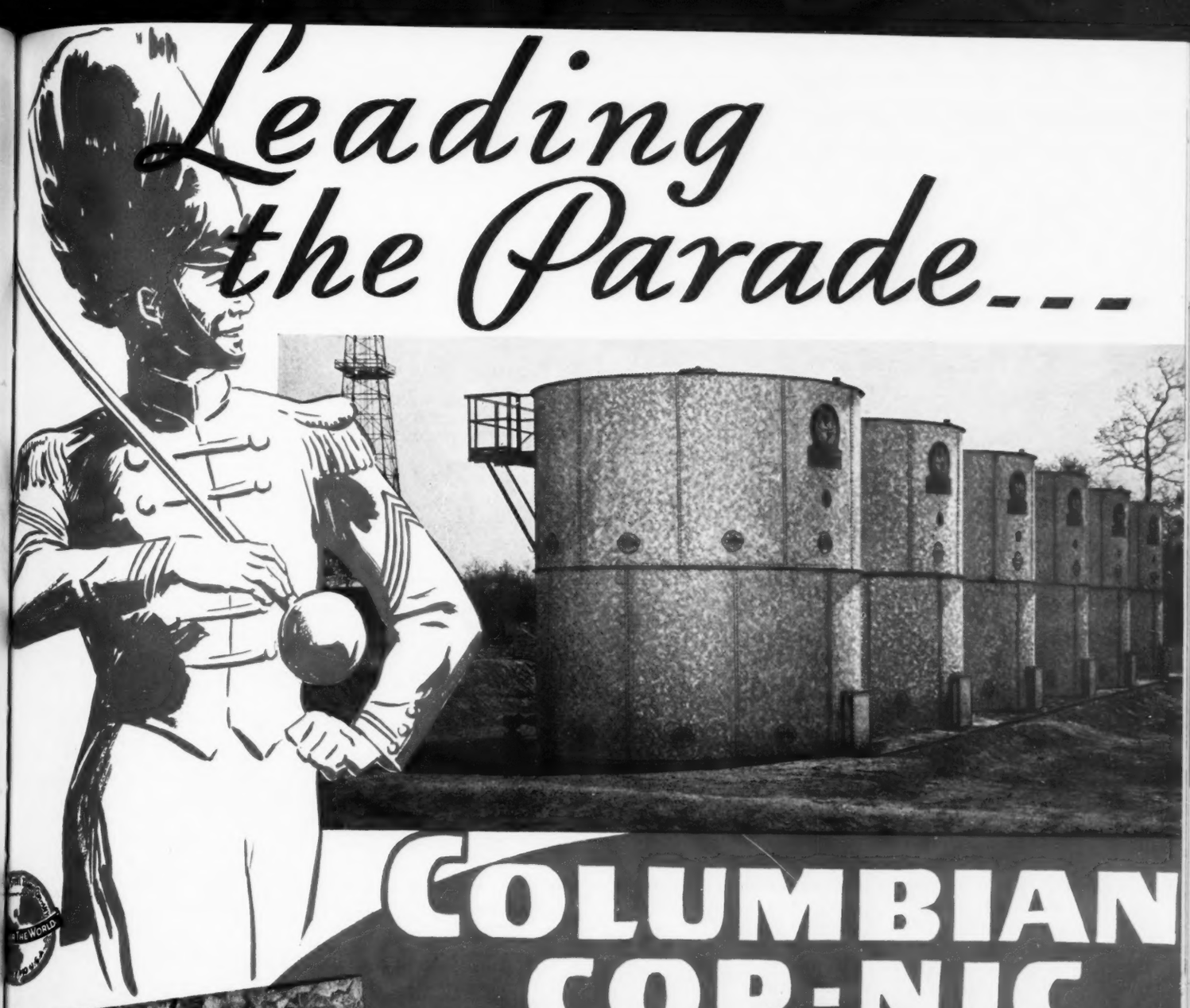
Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Lake City	Barber	Pryor & Lockhart's Gant 1, 7-31s-13w	Viola Lime	4438	90	41	Field
Medicine Lodge	Barber	Barbara Oil Co. et al's Holmes 1, 15-33s-13w	Viola Lime	4847	763	40	Lime
No. Beaver	Barton	Tom Palmer et al's 1, 4-16s-12w	Siliceous	3325	949	39	Field
So. Ainsworth	Barton	Brouk & Natl. Refining Co.'s Gory 1, 10-17s-13w	Siliceous	3352	255	37	Field
Peterman	Barton	Shell Petroleum Corp.'s Peterman 1, 13-16s-14w	Siliceous	3366	1654	37	Field
Henning	Barton	The Texas Co.'s Henning 1-A, 22-19s-11w	Lansing Lime	3115	140	21	Field
No. Ellinwood	Barton	Stanolind O. & G. Co.'s Schartz 1, 33-19s-11w	Siliceous	3350	541	32	Field
Kraft	Barton	C. L. Price et al's Kraft 1, 10-17s-11w	Siliceous	3288	1904	32	Field
Davidson	Barton	Sinclair Prairie Oil Co.'s Davidson 1, 4-16s-11w	Gorham Sand	3316	150	38	Sand
So. Kraft	Barton	Republic's Bloomer 1, "B", 14-17s-11w	Siliceous	3338	1128	35	Field
E. Kraft	Barton	Cities Service Oil Co.'s Hogan 1, 11-17s-11w	Siliceous	3361	603	35	Field
So. Trapp	Barton	Phillips Petroleum Co.'s McClanahan 1, 7-16s-13w	Siliceous	3377	1292	33	Field
S.W. Trapp	Barton	Shell Petroleum Co.'s Ehrlich 1, 1-16s-14w	Siliceous	3296	1292	32	Field
Couch	Cowley	Ryan Consolidated Oil Co.'s Couch 1, 13-30s-5e	Bartlesville	2842	43	33	Field
No. Rock	Cowley	Shawver et al's Fee 1, 3-30s-4e	Bartlesville	2828	96	32	Field
E. Rock	Cowley	Arthur Brewer's Starkey 1, 16-30s-4e	Bartlesville	2802	191	32	Field
Wilson	Cowley	Wakefield's Wilson 1, 4-34s-3e	K. C. Lime	2554	720	39	Field
Burnett	Ellis	Earl Wakefield et al's Burnett 1, 1-11s-18w	Siliceous	3572	1890	32	Field
Froelich	Ellis	Bridgeport Machine Co. et al's Froelich 1, 4-13s-16w	Oswald Lime	3267	1154	27	Field
Walters	Ellis	Gulf Oil Corp.'s Walters 1, 2-12s-18w	Siliceous	3619	....	26	Lime
Blue Hill	Ellis	Billings' Smith 1, 14-12s-16w	Siliceous	3385	572	32	Field
Victoria	Ellis	Buffalo Oil Co.'s Phillips 1, 18-14s-16w	Lansing Lime	3364	1519	19	Field
W. Fairport	Ellis	Billings' Oil Co.'s Oswald 1, 11-12s-16w	Oswald Lime	3105	1367	26	Lime
Schwab	Greenwood	Ohio Oil Co.'s Schwab 1, 9-24s-10e	Siliceous	2766	27	32	Field
.....	Greenwood	Western Kansas' Taylor 1, 6-27s-12e	Miss. Lime	1897	200	36	Field
.....	Greenwood	McGinnis' Henley Est. 1, 25-25s-9e	Miss. Lime	2171	10	35	Field
Byrd	Lyon	Davis & Sory's Byrd 1, 32-21s-11e	Bartlesville	1913	45	39	Field
Barnholt	McPherson	Braddley Brothers et al's Barnholt 1, 30-20s-5w	Miss. Chat	3355	131	32	Field
Olson	Ness	Continental Oil Co.'s Olson 1, 5-18s-25w	Miss. Lime	4325	653	37	Field
Tenny	Ness	Newton Dev. Co. et al's Tenny 1, 19-18s-25w	Miss. Lime	4380	50	44	Field
Tuka	Pratt	Atlantic Refining Co.'s Runyon 1, 11-27s-13w	Siliceous	4397	397	32	Field
Nickerson	Reno	Clyde Pulse et al's Payne 1, 4-22s-7w	K. C. Lime	3287	156	29	Field
Stumps-K. C	Rice & Ellsworth	Bridgeport Machine Co.'s Habiger 1, 5-18s-10w	Lansing Lime	3016	4027	35	Field
Cramm	Rice	Continental Oil Co.'s Cramm 1, 15-19s-9w	Siliceous	3202	302	33	Lime
Cramm	Rice	Comanche Oil Co.'s Cramm 1, 15-19s-9w	Topeka Lime	2947	1719	35	Field
No. Welch	Rice	Fred Phillips et al's Hubenett 1, 23-20s-6w	Miss. Chat	3366	400	30	Field
Guldner, West	Rice	Cities Service Oil Co.'s Bredfeldt 1, 7-18s-9w	Siliceous	3240	267	36	Field
Soeken	Rice	Shell Petroleum Corp.'s Soeken 1, 10-19s-9w	K. C. Lime	2921	68	35	Field
E. Hauschild	Rice	Hollands Brothers' 1, 12-21s-7w	Conglomerate	3476	627	25	Field
Oden	Rice	Republic Oden 1, 5-21s-7w	Congolmerate	3333	2550	27	Field
Wellman	Rice	Gerbrand-Pulse's Wellman 1, 22-21s-9w	Conglomerate	3325	Gas	..	Field
Winget	Rush	Schoenfeld & Kitch's Winget 1, 15-16s-16w	K. C. Lime	3247	797	35	Field
Jones	Rush	Crawford's Jones 1, 35-17s-16w	Sand below K. C.	3625	Gas	..	Field
Giese	Russell	R. H. Shield's Giese 1, 28-14s-13w	K. C. Lime	2915	2145	39	Field
Vaughn	Russell	Cities Service Oil Co.'s Vaughn 1, 17-14s-14w	Oswald Lime	3031	1482	39	Field
Allon	Russell	Billings' Boxberger 1, 21-14s-14w	K. C. Lime	3055	804	34	Field
So. Gurney	Russell	Phil-Han Oil Co.'s Michel 1, 36-14s-14w	Topeka Lime	2946	1073	33	Field
Ochs-K. C	Russell	Cities Service Oil Co.'s Eichman 1, 12-15s-14w	Oswald Lime	3123	866	38	Field
No. Hall	Russell	Parks' Opdycke 1, 20-14s-13w	Gorham Sand	3180	353	37	Field
So. Andover	Sedgwick	Natl. Refining Co.'s Fee 1, 36-27s-2e	Wilcox Sand	3099	189	29	Field
.....	Sedgwick	I. W. Murfin et al's Martin 1, 32-28s-1e	Wilcox Sand	3491	27	47	Field
.....	Sedgwick	Ralph Talbott et al's Downs Est 1, 32-28s-2e	Stalnaker Sand	2229	Gas	..	Field
Drach	Stafford	Fred Rust et al's Drach 1, 12-22s-13w	Siliceous	3705	945	35	Field
Sittner	Stafford	Torry & Feasters' Sittner 1, 33-21s-12w	K. C. Lime	3410	1408	32	Field
Zenith	Stafford	Stanolind O. & G. Co. et al's Hortnett 1, 23-24s-11w	Simpson Sand	3808	974	41	Field
Kipp	Stafford	Skelly Oil Co.'s Kipp 1, 27-25s-14w	Lansing Lime	3906	1265	33	Field
Anness	Sumner	Magnolia Petroleum Co.'s Baird 1, 2-30s-4w	Wilcox Sand	4396	378	43	Field

Oklahoma's 22 Discoveries in 1937 Mostly Small Ones

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Cement (Deep)	Caddo	Magnolia Petroleum Co.'s Henley 1, 35-6n-10w	Sandy Lime	3374	600	34	Sand
Centrahoma	Coal	Carter Oil Co. et al's Thompson 1, 34-2n-9e	Bromide	6330	45	34	Field
Tussy	Garvin	Winkler & McQueens' Perkins 1, 32-1n-3w	Tatums Sand	2291	432	..	Sand
Lamont	Grant	Carter Oil Co. et al's Crisman 1, 16-25n-3w	Dolomite (Simpson)	5408	334	50	Field
Citra	Hughes	Carter Oil Co.'s Hamilton 1, 33-4n-9e	Dolomite (Simpson)	5800	76	34	Field
No. Wellston	Lincoln	Summitt Drlg. Co. & T. D. Phillips' Eakers 1, 35-15n-2e	Viola Lime	5140	150	..	Field
Peck	Lincoln	Stanolind O. & G. Co. & Amerada Pet. Corp.'s Peck 1, 35-14n-6e	2nd Wilcox	4210	30	22	Field
Muyaka	Okmulgee	Lease Investment Co.'s Reaneu 1, 4-13n-11e	Wilcox	3169	300	33	Field
Fitts, South	Pontotoc	E. H. Moore, Inc.'s Muse 1, 33-2n-7e	Hunton	4570	171	40	Field
Fitts, West	Pontotoc	C. W. Roodhouse et al's Booth 1, 20-2n-6e	Cromwell	4397	89	38	Field
No. Shawnee	Pottawatomie	Mid-Continent Pet. Corp.'s Ne-Thah-Ped-Se 1, 24-11n-4e	Wilcox	4886	350	35	Field
E. Shawnee	Pottawatomie	Mid-Continent Pet. Corp.'s Logan 1, 31-11n-5e	Wilcox	4844	180	32	Field
Tecumseh	Pottawatomie	Stanolind O. & G. & Amerada Pet. Corp.'s Billington 1, 32-9n-3e	Wilcox	5320	404	39	Field
Traugh	Seminole	P. Traugh's Williams 1, 22-6n-6e	Bogy Sand	2360	42	..	Field
Traugh	Seminole	W. B. Pines' Amosan 1, 15-6n-6e	2nd Wilcox	3779	750	31	Sand
Saline	Seminole	Stanolind O. & G. Co. & Amerada Pet. Corp.'s Salina 1, 4-5n-6e	Simpson Dense	3317	15	34	Field
Cromwell, So	Seminole	Sinclair Prairie Oil Co.'s Rossanna 1, 28-10n-8e	Wilcox	4189	2024	38	Field
Dora	Seminole	Mallernee's Flowers 1, 29-7n-6e	Bogy Sand	3030	80	..	Field
Milroy (Deep)	Stephens	Carter Oil Co. et al's Harley-Community 1, 24-2s-4w	Oolitic Lime	8175	2769	57	Field
Doyle	Stephens	Helmerich & Payne, Inc.'s Graham 1, 12-1n-5w	Hoxbar Series	3800	307	45	Sand
Frederick	Tillman	Indian Territory Illuminating Oil Co. & Foster Minerals Corp.'s Graham 1, 1-3s-19w	Canyon Lime	3081	514	38	Field
Airport	Tulsa	N. J. Gubser's Gubser-Fee 1, 35-20n-13e	Bartlesville	1030	50	40	Field

Leading the Parade...



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even higher, despite the strict proration of output. Drilling activity should run close to the figure established in 1937, and a number of new fields should be discovered.

Oklahoma Needs Fields

The question "What does 1938 hold in store for Oklahoma?," was partly answered by developments during 1937. In searching for new reserves, drills were sent to ever increasing depths. Undoubtedly there are many more fields in the 2000 to 5000-foot class than have been found, however the 1938 drilling program will include the most extensive search for production from lower horizons the state has ever seen.

The 18 new fields, and four new producing sands in old fields, found in Oklahoma last year did not keep pace with the state's production, which increased approximately 25,000,000 barrels. Therefore, Oklahoma must discover additional supplies unless some of its markets are to be usurped by other states.

Most important development last year was the comeback of Southern Oklahoma after many years of comparative quietness. Several new fields were opened, and this part of the state in 1938 probably will get its most active drilling campaign in many a year.

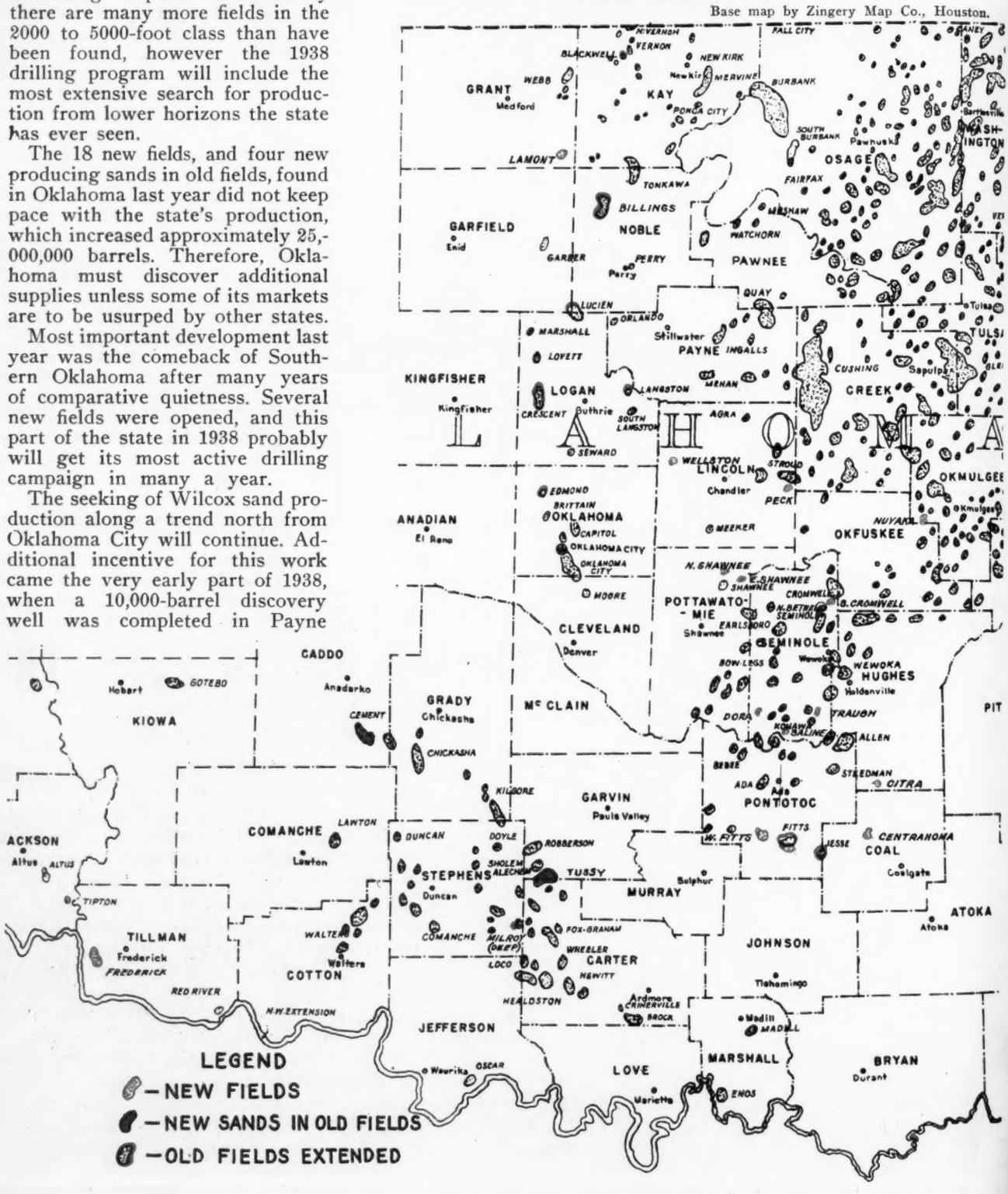
The seeking of Wilcox sand production along a trend north from Oklahoma City will continue. Additional incentive for this work came the very early part of 1938, when a 10,000-barrel discovery well was completed in Payne County. Some regard it as the most important find in the state in several years.

Search for additional producing spots will continue in the area south, west and east of the Fitts pool. The finding of four new pools and new producing sands in two others will cause a continuance of the drilling play in the Seminole district.

Last year Oklahoma was the second most active state, although running a poor second to Texas. It is going to have to continue its last year's pace to hold that position. Oklahoma has not been finding sufficient reserves to continue

South, Central and North Parts Featured Oklahoma in 1937

Base map by Zingery Map Co., Houston.



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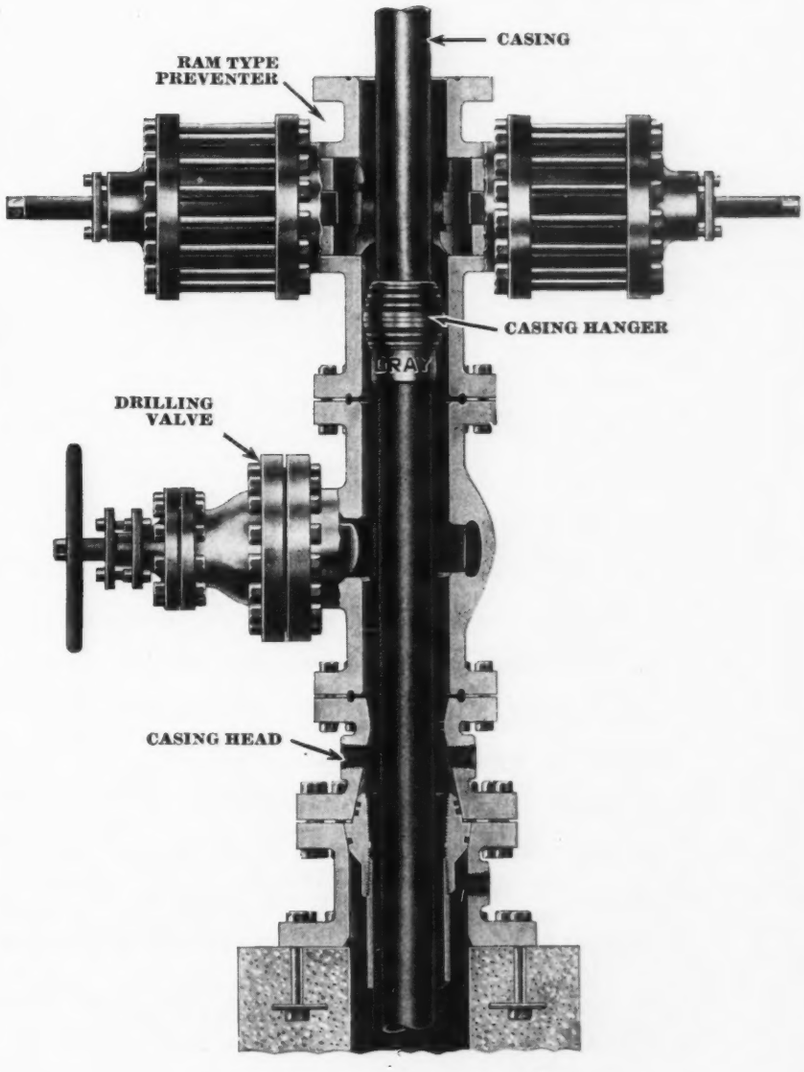

Landing casing through Control Equipment—One stage in GRAY PLANNED PROCEDURE.

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its production rate, and unless the next few years result in a change, output from the state should decline.

California Comes Back

The comeback of California after a number of years when important discoveries were few, indicates that 1938 should see additional drilling and more new fields. The California oil map changed more during the past 18 months than during the preceding 7-year period. Discovery of new fields in intensely developed or prospected districts indicates that additional producing areas will be opened in trend or "gap" plays between old fields.

The San Joaquin Valley, although fringed on both the east and west sides with oil fields, until recently was regarded as too deep for successful prospecting. Now all these early notions have been dissipated. Late in 1936, an important producing district was opened. The year 1937 saw a continuation of drilling, with the Rio Bravo field being proved for production at 11,300 feet.

Deep formations in the old producing fields should not be overlooked as a source of future supply either. The discovery of commercial production in the Eocene sands at Kettleman Hills was one of the most important developments of the year. While it has not as yet been proved to cover a large area at Kettleman Hills, it is certain to encourage the testing of the formation in many regions.

Rockies Expect Better Year

Although 1937 brought some disappointing results to the Rocky Mountain sector, some of the developments throw an optimistic light on projects for the coming year. There will be increased wildcatting on federal lands, resulting from an extension on some 3000 permits in doubtful status prior to the order. An additional year was granted in which to drill. Wildcat discoveries and important showings in tests drilled in 1937 forecast deep drilling, particularly on subsurface structures away from the rims of large basins.

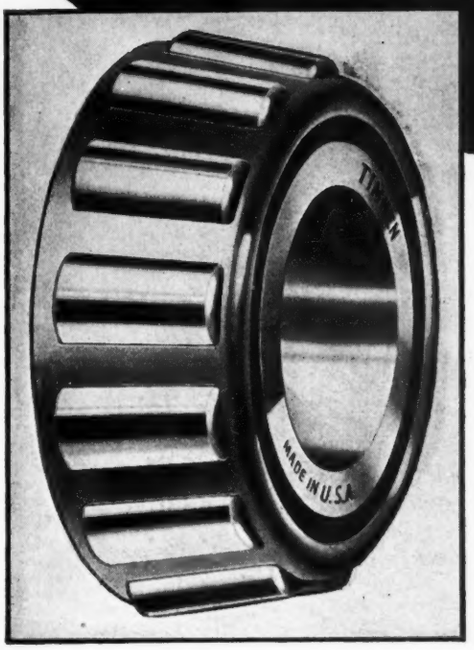
A strike which undoubtedly will rank with the largest in the Rocky Mountains was made late in 1937. It was at Wilson Creek, Rio Blanco County, northwestern Colorado. The discovery well flowed 1480 barrels of 43 gravity oil from the Morrison formation at 6664-6704 feet through the drill stem in 45 minutes. Since that time the test has cored additional satura-

California Came Back During 1937

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Depth	Initial Production	Gravity	Type of Discovery
Rio Bravo	Kern	Union Oil Co.'s Kernco 1-34, 34-28-25	11302	2530	38	Field
Canal	Kern	Ohio Oil Co.'s K. C. L. E-3, 14-30-25	8175	2267	37	Field
Newhall	Los Angeles	Barnsdall Oil Co.'s Rancho San Francisco 1, 26-4n-17w	6472	200	35	Field
Oxnard	Ventura	Vaca Exploration Co.'s Livingston 1, 10-1-22	4270	20	11	Field
Arvin	Kern	General Petroleum Corp.'s Houchin 1, 27-31-29	7490	160	30	Field
Rosecrans	Los Angeles	Barnsdall Oil Co.'s O'Dea 10	7645	1500	36	Sand
Kettleman Hills, North Dome	Kern	North Dome Association's 4-18J, 18-21-17	10739	1200	46	Sand
Eureka	Humboldt	The Texas Co.'s Eureka 2, 22-3-1	7708	Gas	....	Field

There is NO SHORT CUT TO EXPERIENCE



Nobody knows the value of experience better than the oil field operator—and nobody is more respectful of it. Experience is one thing that cannot be imitated. There is no short cut to it, neither is there any substitute for it. It is a sure guide to performance in the selection of any product. For example, the things we have learned about tapered roller bearings during 40 years of manufacturing and applying them are priceless to us and to the users of our product. They cannot be acquired as easily as the appearance of a bearing can be duplicated. That is one important reason why the trade-mark "TIMKEN" stands for unequalled service in tapered roller bearings.

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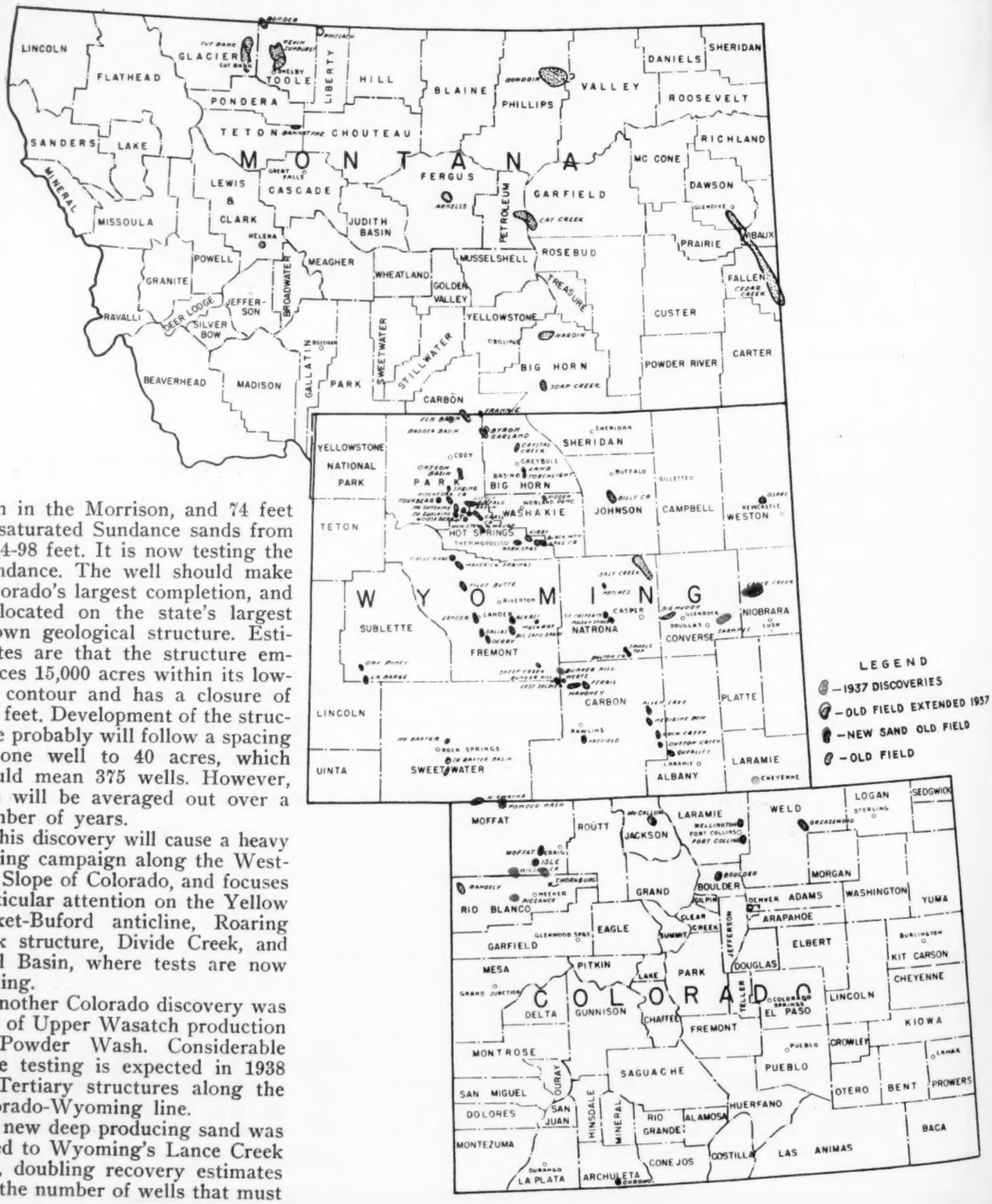
Five Discoveries in 1937 Enhanced Rocky Mountain District

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Wyoming							
Bunker Hill	Carbon	Ohio Oil Co.'s Wyoming Oil & Gas Co. 1, 29-27n-89w	Shannon	1448	Gas	....	Field
Shawnee	Converse	Wyoming-Southern Oil Co.'s Evert 1, 26-32n-69w	White River Contact	561	25	24.8	Field
Lance Creek	Niobrara	Ohio Oil Co.'s Leo-5 OPC-16, 35-36n-65w	Middle Minnelusa	5537	1800	42	Sand
Colorado							
Powder Wash	Moffat	Mountain Fuel Supply Co.'s Stewart 1, 32-12n-97w	Upper Wasatch	3115	3456	38	Sand
Wilson Creek	Rio Blanco	Texas Co. & California Co.'s Freman-Government 1, 33-3n-94w	Morrison	6704	1480	43	Field



tion in the Morrison, and 74 feet of saturated Sundance sands from 6824-98 feet. It is now testing the Sundance. The well should make Colorado's largest completion, and is located on the state's largest known geological structure. Estimates are that the structure embraces 15,000 acres within its lowest contour and has a closure of 900 feet. Development of the structure probably will follow a spacing of one well to 40 acres, which would mean 375 wells. However, this will be averaged out over a number of years.

This discovery will cause a heavy leasing campaign along the Western Slope of Colorado, and focuses particular attention on the Yellow Jacket-Buford anticline, Roaring Fork structure, Divide Creek, and Coal Basin, where tests are now drilling.

Another Colorado discovery was that of Upper Wasatch production at Powder Wash. Considerable more testing is expected in 1938 on Tertiary structures along the Colorado-Wyoming line.

A new deep producing sand was added to Wyoming's Lance Creek field, doubling recovery estimates and the number of wells that must

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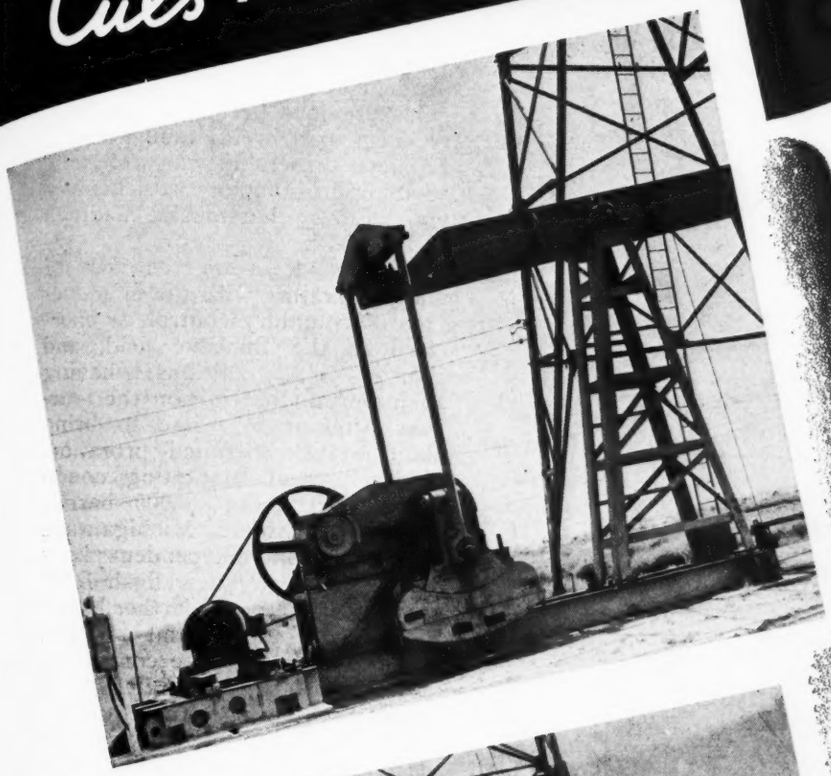

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be drilled to develop the field. The new producing sand is the Minnelusa found at 5516-37 feet. From 130 to 140 wells are expected to be drilled to the Minnelusa sand.

Considerable interest is being devoted to rank wildcats in the Rocky Mountains. These include tests being drilled in North Dakota, western Nebraska and Utah.

Michigan Looks Up

Although 1937 was by far the best year for Michigan since 1925, and despite the downward fluctuation of crude prices late in the year, 1938 development is expected to at least equal that of the past 12 months. None of the four major areas discovered last year have been drilled up completely, although they apparently are fairly well defined. Proven acreage as the year opened should bring the drilling of at least 650 wells. Normal wildcatting based on comparative averages over the past six years, should bring at least 200 tests, not including core and shallow marker explorations.

The most promising, semi-proven districts, now awaiting development include the Bently and Secord Township plays, both in Gladwin County. In Bentley Township, 17n-2e, three commercial wells have been completed. They are so located as to indicate a field at least three miles long.

Major companies showed more interest in Michigan in 1937 than in any previous year, despite the interest in nearby Illinois. At least a half dozen majors not now active in the state have built up large blocks, a number of which have seen preliminary testing. Several of these concerns should engage in drilling work during 1938.

Last year likewise proved a good year for many of the smaller independent companies. Unlike Michigan's previous best field, the Porter-Yost area in Midland County, Buckeye ownership was well split up. Sun Oil Company was the only major firm with extensive holdings in this field.

Dissatisfaction on the part of many operators with the effectiveness of voluntary control, as exercised in the Buckeye field, and year end price conditions, is having an important bearing on the four-year attempt by some to bring about state controlled proration. Under present marketing conditions, with about 30,000 barrels marketed outside of Michigan and 20,000 barrels to independent plants in the state, any new flush fields opened this year will farther harass the price structure, and add fuel to flame demand state control.

Although drilling in Michigan is expected to be high, there appears little possibility of any strong move toward deep drilling campaigns during the current year. Costs of drilling below 4000 feet probably will be regarded as prohibitive by most companies until stronger markets are procured. Moreover, with Michigan still carrying numerous blocks, either untested or only semi-tested in the upper beds, development probably will center on Traverse and Dundee lime objectives for the next two or more years.

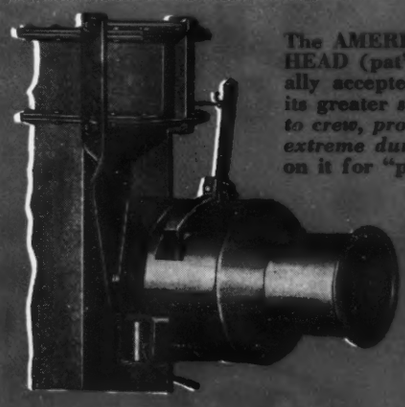
Michigan's record for 1937 is impressive. Drilling was up about 18 percent. Production reached a new all-time peak. But these may be surpassed in 1938.

Michigan Did Well During 1937

(Includes new fields and new sands in old fields)

Field	County	COMPANY, WELL AND LOCATION	Producing Formation	Depth	Initial Production	Gravity	Type of Discovery
Buckeye	Gladwin	J. V. Wicklund Development Co.'s State 1, 11-18n-1w	Dundee Lime	3650	1257	39	Field
Secord	Gladwin	Whitehill et al's Bosley 1, 11-19n-1e	Dundee Lime	3500	65	35	Field
Bentley	Gladwin	Harold Hand's Smart 1, 29-17n-2e	Dundee Lime	3500	56	40	Field
Adams	Arenac	E. H. Linabury's McTaggart 1, 26-19n-3e	Traverse lime	2600	45	37	Field
Salem	Allegan	Rob't Lentz's Rabb 1, 16-4n-13w	Traverse lime	1600	110	38	Field

MARCHING ON WITH THE INDUSTRY . . .



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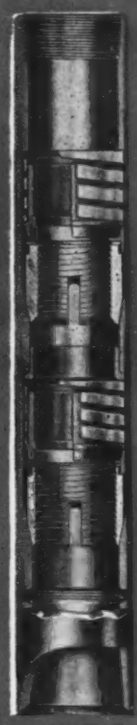

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Drilling Abroad

Although surprisingly few new fields were discovered the past year, 1938 expected to bring increased drilling

By WM. V. GROSS
Foreign Editor

IN studying results of drilling in 1937 in countries outside the United States of America, one thing looms as startlingly as a wart on the end of a man's nose: surprisingly little in the way of new crude reserves was discovered.

Considering the rapid rise of consumption curves throughout the world and the projected rises of those curves as penned by leading petroleum economists, another thing looms equally as inescapable: surprisingly much exploratory drilling is indicated for 1938 if the anticipated needs of the future are to be provided.

Unless radical changes take place in some countries another major development seems inevitable: a shifting of investment from countries which have made private enterprise's survival difficult to others more in sympathy with normal, rational operation of industry.

Statistics involved in helping to arrive at the above conclusions are found elsewhere in this issue. Regional situations involved in forecasting the outlook for 1938 are given in condensed form in the following paragraphs:

More Work Planned in South America

Foremost among developments in South America last year was increased production, particularly in Venezuela, and the granting of several important concessions, which forecast greater exploratory work during 1938.

In producing better than 182 million barrels in 1937, Venezuela reached a new peak of prominence among oil producing nations of the world. Indications at the close of the year were that 1938 would equal, if not surpass, 1937 so far as production is concerned. With accumulation of data from wildcats drilled during the past year, more good fortune is expected to attend exploratory efforts in 1938. At any rate, nothing is on the horizon for Venezuela to justify apprehension concerning the amount of drilling to be done in the next 12 months.

There is a possibility of new fields for Peru this year. The government is wildcatting, and Blue Goose Oil Company recently took over the old Selden-Breck concession in the Pachitea region, having shipped from the United States late in 1937 a rig which should be set up and drilling by now.

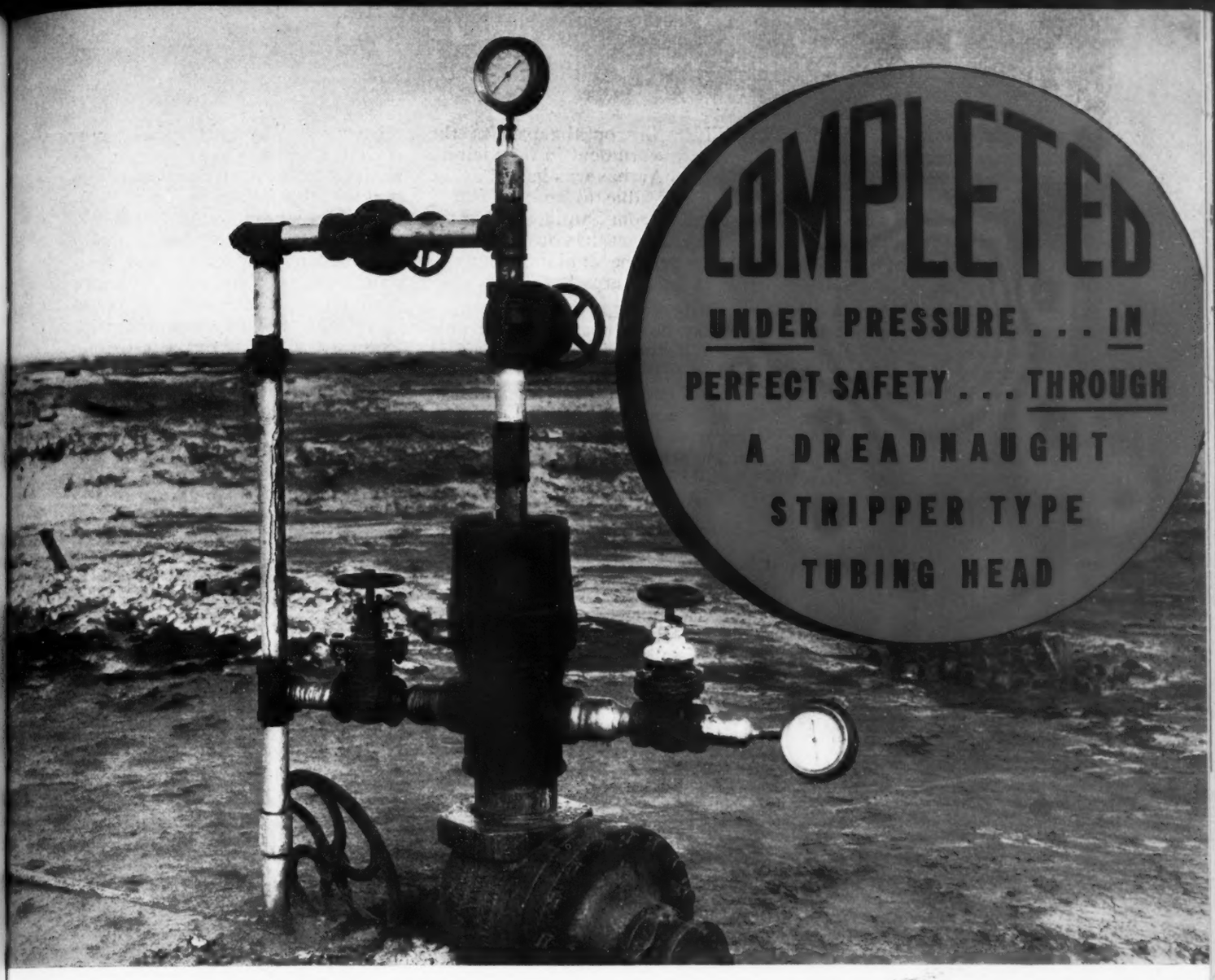
Petroleum industry activities in Colombia were highlighted by entry of new concessionaires, primarily Compania de Petroleo "Shell" de Colombia, which took thousands of acres for exploratory work. That Colombia will continue prominent among producing nations in 1938 and 1939 is indicated by the fact that International Petroleum Company, Socony-Vacuum Oil Company, Richmond Petroleum Company, Tropical Oil Company, Sociedad Nacional de Carrare, Colombian Petroleum Company, and others are active in exploratory work on concessions. The nation produced 20 million barrels last year, and there is no reason to believe this amount will not be equalled or surpassed in 1938. Approximately 225 miles of 12¾-inch line pipe was ordered by The Texas Company recently for shipment to South America, presumably to the Barco concession in Colombia which stands out as a potentially great crude reserve.

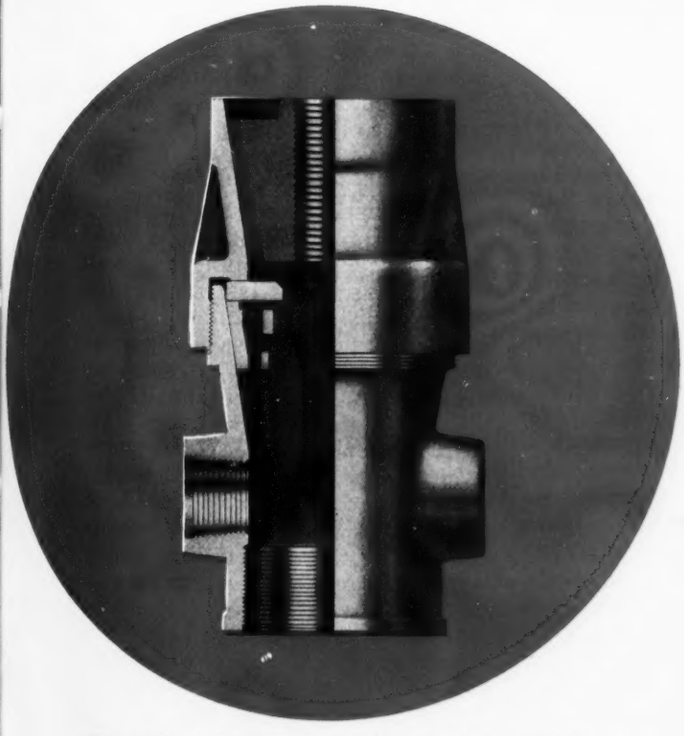
International Petroleum Company, which already has substantial production in Colombia and Peru, late in 1937 completed negotiations for exploration of about 500,000 acres along the seacoast of Ecuador, assuring a continuation of search for new production started in 1937.

Trinidad Drilling to Gain

Trinidad, with an estimated output in excess of 15 million barrels in 1937, looks forward to a greater year in 1938. Footage drilled and wells completed are upward in trend. So is production. Prospects for the future are bigger and better for the petroleum industry in Trinidad than perhaps they have been for the past 10 years, and with the ever present war scares in Europe, Trinidad looms up brighter in the limelight as the greatest source of British Empire oil production.

Argentina's production was increased from 15,455,000 barrels in 1936 to an estimated 16,300,000 barrels in 1937 largely through efforts





The sectional drawing above shows the design of the type PX-23S Stripper Tubing Head, which is the basic design of all DREADNAUGHT Stripper Tubing Heads.

With a DREADNAUGHT Stripper Type Tubing Head on the well, tubing may be run and pulled under pressure without the use of a blowout preventer. The Tubing Head itself serves as a blowout preventer, being provided with a stripper rubber which effectively seals in well pressures yet readily passes tubing collars.

DREADNAUGHT Stripper Tubing Heads are available in two types, both of which employ essentially the same design. The type "PX-23S", shown in section at left and in the above field scene, is recommended for use where well pressures do not exceed 1000-lbs. It is also available with a stuffing box above the slips, being designated as type "PX-23SB". The type "PX-65" is similar in design to, and recommended for the same well pressures as, the type "PX-23S". However, the type "PX-65" is also available with a split steel bushing which fits over and between the stripper rubber and tubing to reinforce the rubber and make it safe on well pressures as high as 2000-lbs. One feature in particular, which is found in all DREADNAUGHT Stripper Tubing Heads, is that the weight of the tubing string is transmitted to the body of the tubing head through the threaded connection between the bonnet, or slip bowl bushing, and body of the head. None of this weight is supported by the rubber itself, the rubber being under stress only when tubing is being run or pulled, a feature which will materially prolong the life of the rubber.

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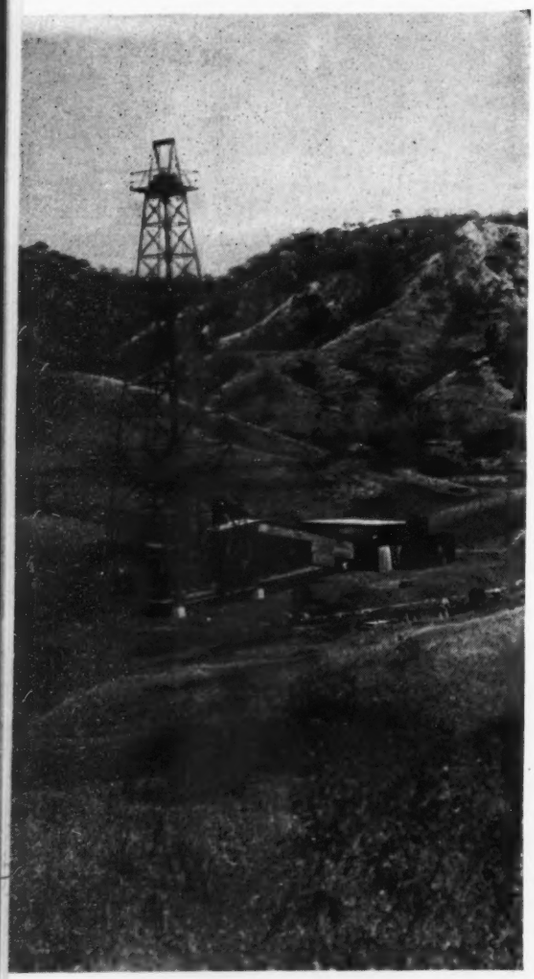
of Yacimientos Petroliferos Fiscales, the government agency for producing oil. Although some prospecting continues by private enterprise there, the nationalistic tendency followed in Argentina in the past two years has not been too encouraging to outside capital.

While Bolivia had been an important producer of crude oil under exploitation management of Standard Oil Company of Bolivia as the only operator, Brazil and Bolivia, working jointly, contemplate fostering serious exploratory work in 1938 in the sub-Andean zone of Brazil from the Parapeti River northward to the Bolivian border. Private enterprise was a bit leery about going into Bolivia in 1937.

Some of Brazil's plans for 1938 are covered in the paragraph devoted to Bolivia. In addition, the government spent in 1937, and will continue to spend in 1938, considerable money for geological work. Several likely prospects have been spotted, but the country has received no really deep tests.

An exploratory test located in northwestern Peru, South America.



Wildcatting on the part of the Chilean government in the vicinity of Puntas Arenas was halted in the fall of 1937 due to lack of funds, but advice from Santiago indicates the government has made it possible to resume exploratory work in 1938 on a limited scale.

Private enterprise and the government have spent considerable money during the past two years looking for oil in Uruguay. Most of it has been for geological work, though several rigs have been bought and are being operated for the government by ANCAP.

Asia Moves Forward

Potentially, one of the most important developments in 1937 was announcement that Inland Exploration Company had found three likely looking structures on its 240,000-square mile concession in Afghanistan. Because this news came late in the year, additional preliminary geological work will have to be done before location for the first wildcat of the American organization in the Asiatic nation can be staked, though it is understood drilling equipment already has been ordered from the United States.

"The most wonderful field in the world" is a description that has been applied to a small area that in the past year has assumed rank of one of the world's more important crude reserves. Bahrein Island, said to be the cheapest field to drill and produce, sharply increased its output in jumping from 4,645,000 barrels in 1936 to an estimated 8,600,000 barrels in 1937, setting the productive area of the field, based on the 2000-foot sand, at about 11,000 acres. The importance of Bahrein lies in the fact that it emphasizes petroleum possibilities in that section and will continue, as it already has, to offer an incentive for further exploratory work on the nearby mainland of Arabia.

Given a chance in 1937 by declining crude sources elsewhere, Iran, with but one new pool definitely classed as a commercial producer during the year, stepped its production up nearly 12 million barrels to recover an estimated 73,383,000 barrels. Most of it came from the three old districts: Masjid-i-Sulieman, Haft-Kel and Naft Khaneh. Assurance of considerable exploratory drilling in 1938 is afforded by necessity of Anglo-Iranian Oil Company's choosing certain portions of concessions during the year and by entry of Amiranian Oil Company as a competitive wildcat interest. Retention of its rank as the fourth producing nation of the world seems assured.

Iraq, too, profited by declining Roumanian production and Russian exports, production there jumping to an estimated 31,171,000 barrels in 1937 as compared with 29,406,000 barrels the year before. Aerial mapping and geologizing will continue in 1938, though exploratory drilling may be held to conservative programs until additional outlet for the nation's production is provided. Capacity of the famous Iraq pipe line is about 80,000 barrels per day, or 29,200,000 barrels annually.

Japan Opens New Fields

A production increase of 10 percent over the 3,820,462 hectoliters produced in Japan in 1936 was recorded in 1937. A new field was found south of Oguni field and another high up on the mountain area at the foot of Chyokai volcano. Discovery of profitable deep sands in proven fields of the nation will result in considerable deeper drilling in 1938. Japan's exploratory efforts will continue throughout that empire as her needs are far in excess of her production.

The Turkish government has been rewarded in its current prospecting work by small gas production and enough subsurface information to indicate the wisdom of additional drilling around Mardin and a few other spots. Drillers and crews have been imported from the United States to carry on the search for oil.

Netherlands Indies

Notwithstanding a gradually increasing production and a constantly larger total number of well completions in the last four years, Netherlands East Indies sorely needs new fields. Most of the more important older fields are showing declines and soon will be drilled up. New discoveries have been scarce. Hence, impetus for 1938 wildcatting in the Far East is given. Highly competitive majors hold concessions in the several islands comprising the East Indies, and it is safe to predict the probability of adding new crude reserves in that region of the world in 1938.

New Guinea, that is Dutch New Guinea, the Mandated Territory and Papua, has been subjected to considerable exploratory work during 1937 and will be in 1938. With

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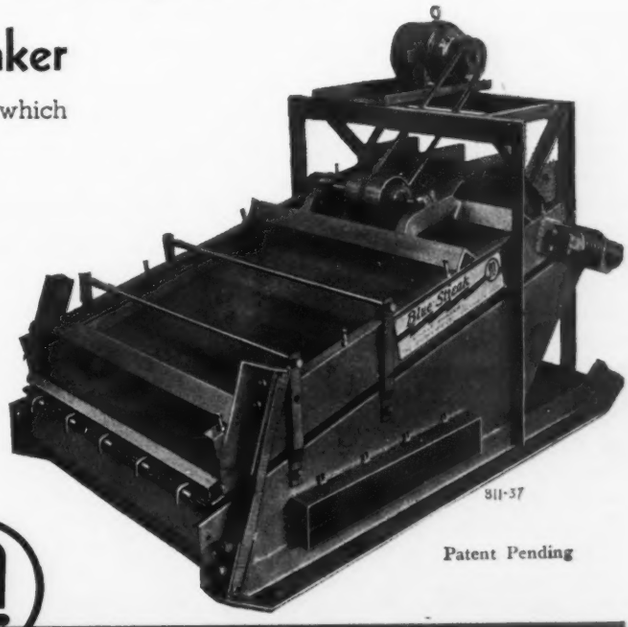

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new reserves shy of estimates of future needs in Netherlands Indies and with such organizations as Socony-Vacuum, Shell, Standard of New Jersey, Oriomo Oils, Ltd., and Oil Search, Limited, holding concessions, New Guinea looks forward to a busy year of wildcatting.

India's oil industry, largely under control of major interests, rocked along with conservative development in 1937 to show a slight increase in production, the output being estimated for the year at 9,810,000 barrels. A movement is on foot to determine oil bearing possibilities of the Sind, a desert section of India which was prospected several years ago. While the area was condemned then, new exploratory technique may uncover there, as elsewhere, fields that were missed in the first campaign.

Australia rocked along in exploratory efforts largely as it has in the past, finding little of immediate commercial importance, yet realizing that more and deeper exploratory tests must be drilled before that continent can be said to have had a really fair test for oil. Limited finance has been one of the main drawbacks to Australian exploration, that and the fact that major companies do not seem to have been sold on its possibilities.

Field in Hungary Features Europe

A well estimated capable of producing two-thirds of the small domestic needs was completed near Lispe, Hungary. Additional drilling, both in the field and on other prospects there is assured for 1938. American interests join official Hungary in the search for new reserves.

From the standpoint of crude oil reserves, Russia is probably one of the most argued over nations in the world. Goubkin's estimates place Russia far ahead of the United States of America as a potential source of crude. Other authors are far from being that optimistic. But the fact remains that Russia's domestic consumption has shown gains in excess of her domestic production. Her output for 1937 is estimated at better than 196 million barrels. She found several new fields, reports indicate, but specific information on them is lacking. It is safe to say that Soviet Union will continue prospecting with the drill in 1938 and that efforts will be directed at passing the 200-million barrel mark in production.

The close of 1937 found Austria looking forward to its greatest year as a crude producing nation. Although the country's production is small, less than 1000 barrels per day, the rate of increase during 1937 was such as to indicate the year's output would almost double the total cumulative production from 1932 through 1936. Austria's 1937 output, put at slightly less than 280,000 barrels, may be compared with approximately 52,339 barrels in 1936. Wildcatting will continue during 1938 there.

Heretofore it has always been said that tests looking for oil in the British Isles did not go deep enough or were not backed by interests of sufficient financial responsibility to assure a fair trial of England's oil potentialities. However, 1937 saw two of the strongest organizations in the world engaged in the search for petroleum there. Both failed. But 1938 promises continuation of the wildcat campaign current in 1937. Five heavy rotaries are in use.

Roumania's crude oil production's curve, which was sharply down in 1937 with a decline of nearly 20 percent to 53,100,000 barrels in the face of an increase of almost 30 percent in drilling, is likely to continue downward until some change is made in current laws to offer more encouragement to private enterprise. The country, which long held rank of the world's fourth greatest producer of petroleum, dropped from that rank in 1937. New fields expected to redeem the country as a producer failed to pan out. Search for additional reserves cannot continue to the degree needed unless changes in government regulations provide the necessary incentive.

Another foreign development worthy of note in 1937 was the active participation in development of Albanian crude reserves by an interest other than Italian. Societe Francaise Industrielle et Commerciale has obtained commercial production in several wells and is proceeding on the old Syndicat Franco-Albanais concession in a conservative manner. Production of the little Adriatic nation, incidentally, is expected to double in 1938, an event more important politically than economically.

Poland has been unable to stem the downward curve of production which has confronted the company for a long time. Activity has been largely restricted to drilling up proven areas and looking for deeper sands therein, though a limited amount of wildcatting has been done. At that, the country is still able to export a little of its oil. But the situation demands immediate action in the way of looking for new fields. Two new gas fields were found near Debnica in December.

A continuation of the government-subsidized exploration campaign in Germany in 1938 is assured. Little information on actual strikes or discoveries in 1937 is available, only one new field being reported, due to the government's censorship of news concerning oil industry development. However, the three percent gain in 1936 over 1935 production still left Germany several million barrels per year shy of meeting home needs, hence, the current campaign of over 70 wildcats. She produces less than 4,000,000 barrels per year and consumes over 5,000,000 tons. (One ton equals about seven barrels.)

France has been forced to depend on Pechelbronn field for domestic supply of crude for a number of years, notwithstanding desultory wildcatting over a decade. However, plans are made for additional wildcatting in 1938 to develop reserves in France proper that will relieve the nation of importing more than 98 percent of domestic needs. France, in the hot bed of European politics, feels her lack of domestic supply keenly. Pechelbronn, by the way, yields only about 80,000 tons annually, a little over one percent of the country's requirements.

Self-sufficiency has long been the goal of producers and refiners in Italy, and the latter group has come closer in recent years to realizing that goal than the former. Italy produces considerably less than one tenth the crude she needs, a condition presaging (in the absence of condemning data) continuation of her present wildcatting in the country proper. She is, of course, as elsewhere indicated in this article, doing all she can to discover commercial production in Italian colonies.

Zante, an island off the coast, has thus far furnished practically all the crude oil production of Greece. Hopes for future production were brightened during the year, however, by a small discovery in the Province of Van and the renewal of concessions by four groups. Limited exploratory drill-

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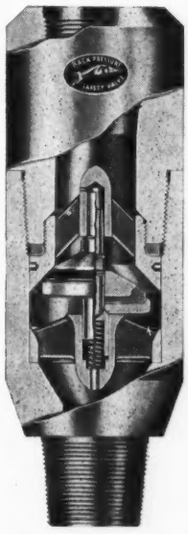

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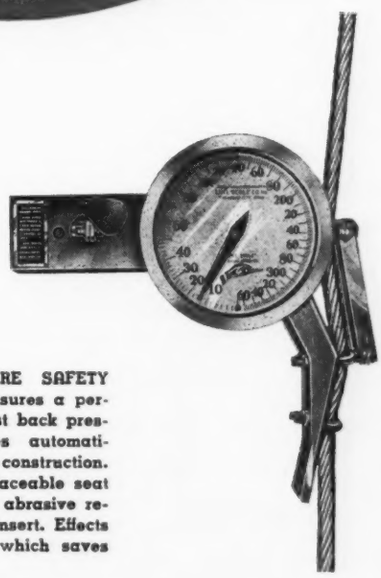

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ing will be carried on there in 1938.

Although a few spots in Czechoslovakia produce crude in negligible quantities, the government is far from satisfied with results of exploratory drilling. Hence, certain parties in the autonomous administration controlling petroleum matters are interested in importing outside wildcatting talent, with the result that continuation of the search for new reserves in 1938 may be expected. The country produces less than 1500 metric tons per month.

Exploratory drilling in the vicinity of Moll, Belgium, continued without developing production in 1937. Due to its location "on trend" from certain productive areas in Germany, Belgium probably will be subjected for further exploratory drilling.

Anglo-Ecuadorean Oilfields, Ltd., has petitioned the government of Portugal for an exploratory concession, but will not be able to locate its first test until the formality of granting the petition has been indulged in.

Sweden will be among the wildcatting nations in 1938, one firm having applied for permission to drill on a 1325-hectare concession in Tingstade and Hejnum Parishes.

North American Countries Find Oil

Canada closed the year with announcement that 40 tests would be under way in Turner Valley in the spring of 1938. Oil potentialities of Alberta began to be realized in 1936. Attractive initial production figures of wells completed in 1937 in Turner Valley field will do much to encourage worthwhile wildcatting and serious exploitation work elsewhere in the dominion in 1938. Production in this field is already under proration, and a busy wildcat campaign on more than a score of structures throughout the province assures considerably more activity for the year just begun than was recorded in 1937. The dominion produced 2,670,000 barrels in 1937 as against 1,508,000 barrels in 1936. Production in 1938 probably will exceed 3,250,000 barrels by a comfortable margin.

With Turner Valley in Alberta furnishing the incentive, British Columbia hopes to develop in 1938 production from current wildcat activities. One test on Sage Creek was drilling below 6500 feet as the year closed.

In Mexico the big thing during 1937 has, of course, been the labor problem, one which ended the year with the syndicates and the oil companies deadlocked. Exploratory work and field development were crippled, and the outlook for 1938 is questionable with companies declaring themselves unable to meet demands of the labor syndicates and the federal board of arbitration.

Petroleos De Mexico, S.A., the semi-official, integrated government oil company was dissolved during the year and replaced by General Administration of National Petroleum, a wholly official company. Granting of drilling permits to foreign owned corporations was suspended for a great part of the year; later they were granted sparingly.

Shell interests closed a deal with the government in December giving Compania Mexicana de Petroleo "El Aguila," the Shell subsidiary which already was producing more than 60 percent of Mexico's crude, practically control of Poza Rica, rated by some as the world's second greatest reserve.

Production of a crude oil that is practically gasoline in a couple of localities in Cuba continues to render the island attractive to major operators, some of which consider that possibilities of the Vinales limestone have not been sufficiently tested by the drill. While the local companies continue developing the high gravity oil—even if the recovery is small—this spot to the south of Florida will remain an intriguing one.

The Caribbean island of Haiti entered the class of potential oil producers late in 1937 when Skelly Oil Company and others took over a concession embracing more than 500,000 acres and shipped geologists and drilling technicians to the spot. Company officials believe the area is on a direct trend from Eastern Venezuela.

Guatemala has never entered the ranks of oil producing nations, though it has been subjected to spasmodic geologizing. In 1938, however, the picture changes to one representing more serious search for oil. Shell interests are on the scene, having been engaged in preliminary mapping and geological work late in 1937. Something worth drilling should be found on the 7,600,000 acres the Shell of Guatemala holds.

Although a small amount of oil has been produced at Katalla field, Alaska's main interest lies in additional geological information being furnished through a wildcat running high on a structure on Chinitna peninsula. Exploratory drilling in that territory of the United States is planned during 1938 by two groups.

Prospecting Only for Africa

Attempts of Inyaminga Petroleum Company to develop production north of Beira in Portuguese East Africa on a structure between the Zangwe River and Inhaminga met with failure.

Offsetting this, however, Italy thinks enough of prospects in Ethiopia, Dunkalia, Hararino, Somaliland and Ogaden to have on the ground at this time geological and geophysical crews looking for structures likely enough to drill. This is the second group of crews the Italians have sent into Africa in 12 months.

Prospecting in Angola and Uganda, Africa, continue without having developed commercial production thus far. Algeria remains in the class of "negligible producers," though the French are reluctant to admit on the basis of the relatively small amount of exploratory work done there that the country has no potentialities. Development of Algerian concessions by foreigners is not encouraged.

Although several have applied for concessions to explore for oil in Kenya, it is generally thought granting such will be held up until September 1, 1938, when Great Britain's new ruling on oil exploration concessions goes into effect. Welfare of England's admiralty is the backbone on which requirements of the law are framed.

Production of crude oil in Egypt has been declining for several years, with the only production of any consequence being furnished by Hurghada field. However, outside interests began bidding for concessions in 1937, a situation which may call for exploratory drilling in 1938. Legislators there are working for passage of new laws regulating development of production which may tend to encourage entry of foreign capital.

Although 70 tests have been drilled in Morocco and oil has been found in varying quantities in a number of places, no decisive results have been obtained from the current exploration campaign of Compagnie Francaise des Petroles. The search will be carried on.

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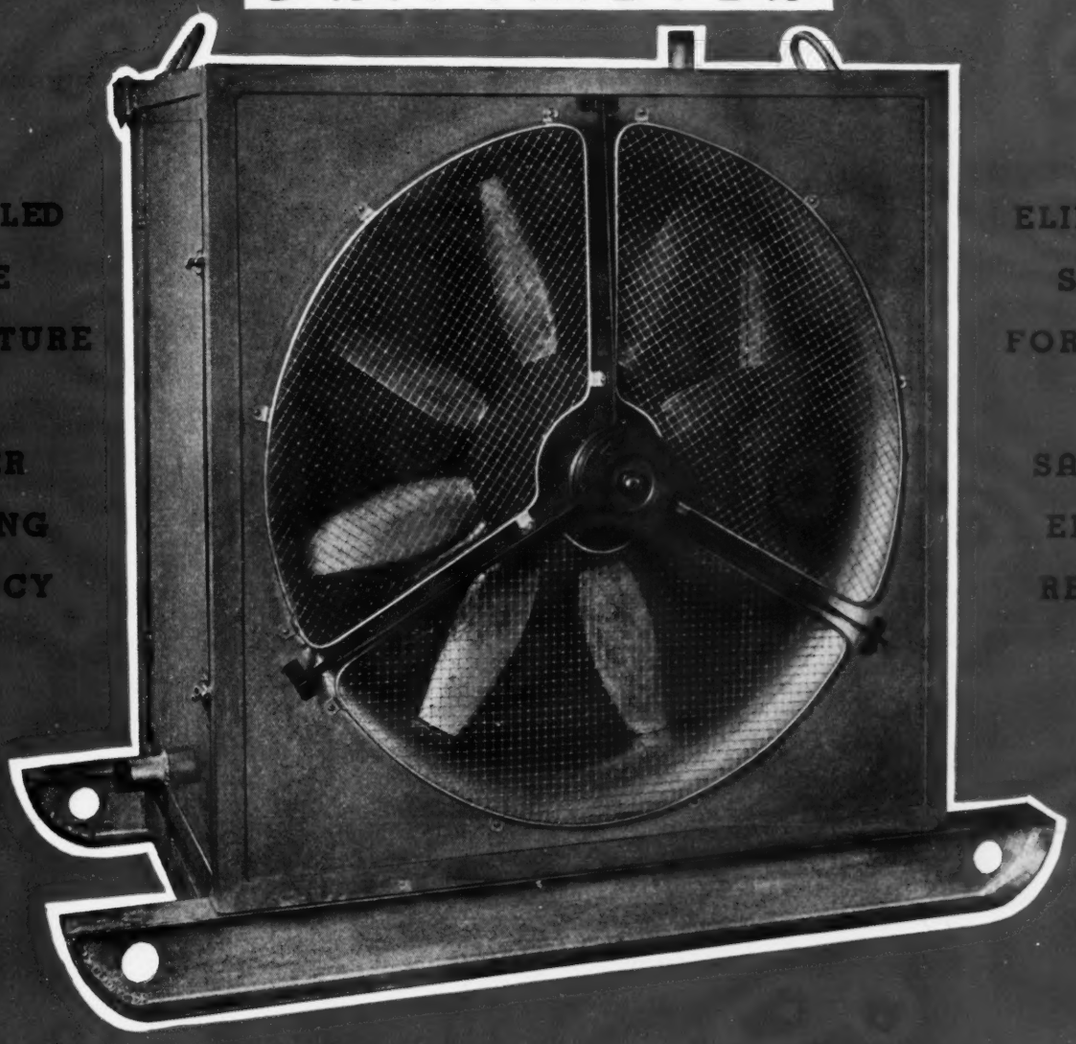

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Refining

Increased demand for petroleum products, improved processing facilities, and replacement of out-moded units indicate continued expansion throughout world

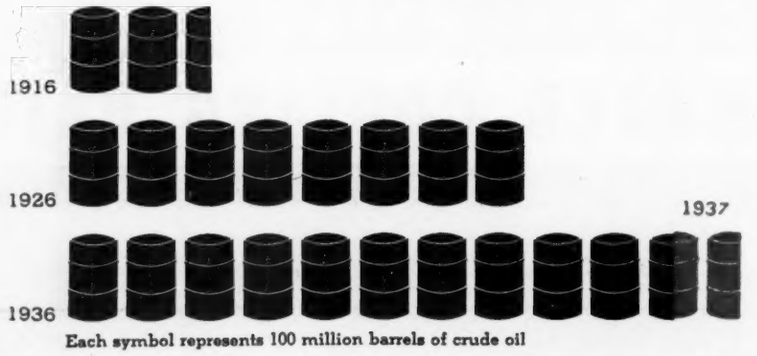
By GEORGE REID
Staff Writer

THE refining branch of the petroleum industry continues to improve its processing facilities, to replace obsolete and out-moded equipment, and to expand its operations throughout the world. A study of refining facilities, and their condition, indicates the need and strong liklihood of a continuation of the trend toward modernization and rehabilitation. Likewise, anticipated increases in the demand for petroleum products in practically every country points to the construction of additional plants and the expansion of existing ones.

Demand to Expand

Many students of economics agree that United States motor fuel demand during 1938 will be approximately five percent greater than the all-time peak established in 1937. Demand for heavy fuels, such as heating and fuel oil, is greater this winter than in any previous year, and there is much evidence that this trend will continue. One of the largest increases has been in the use of oils for heating purposes, which is growing much faster than gasoline sales. Purchases of oil burners is expected to show additional growth during 1938, indicating a large demand for heating oils next winter. The new year is expected to be satisfactory as far as new automobile sales are concerned, which not only forecasts the use of much gasoline, but also greater consumption for lubricants, both oil and greases. Moreover, resumption of general industrial plant activity, confidently expected by many in the spring,

Need for Continued Refining Expansion in U. S. Shown by Increase in Volume of Crude Oil Processed Annually



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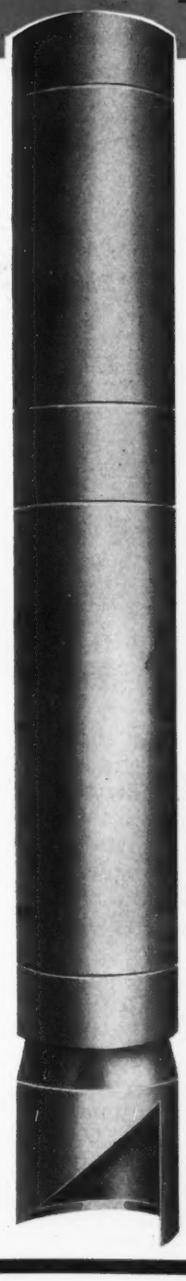

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The Abercrombie Inside Cutter has three friction rollers contacting the inside of the pipe. Right-hand rotation gradually feeds the blade out by continuous friction of rollers contacting the beveled friction rings which are splined to the shaft. The shaft in turn drives the eccentric bottom of the shaft that is pinned to the cutter blade. A clutch type releasing spear run above the cutting tool permits cutting and pulling in a single operation.

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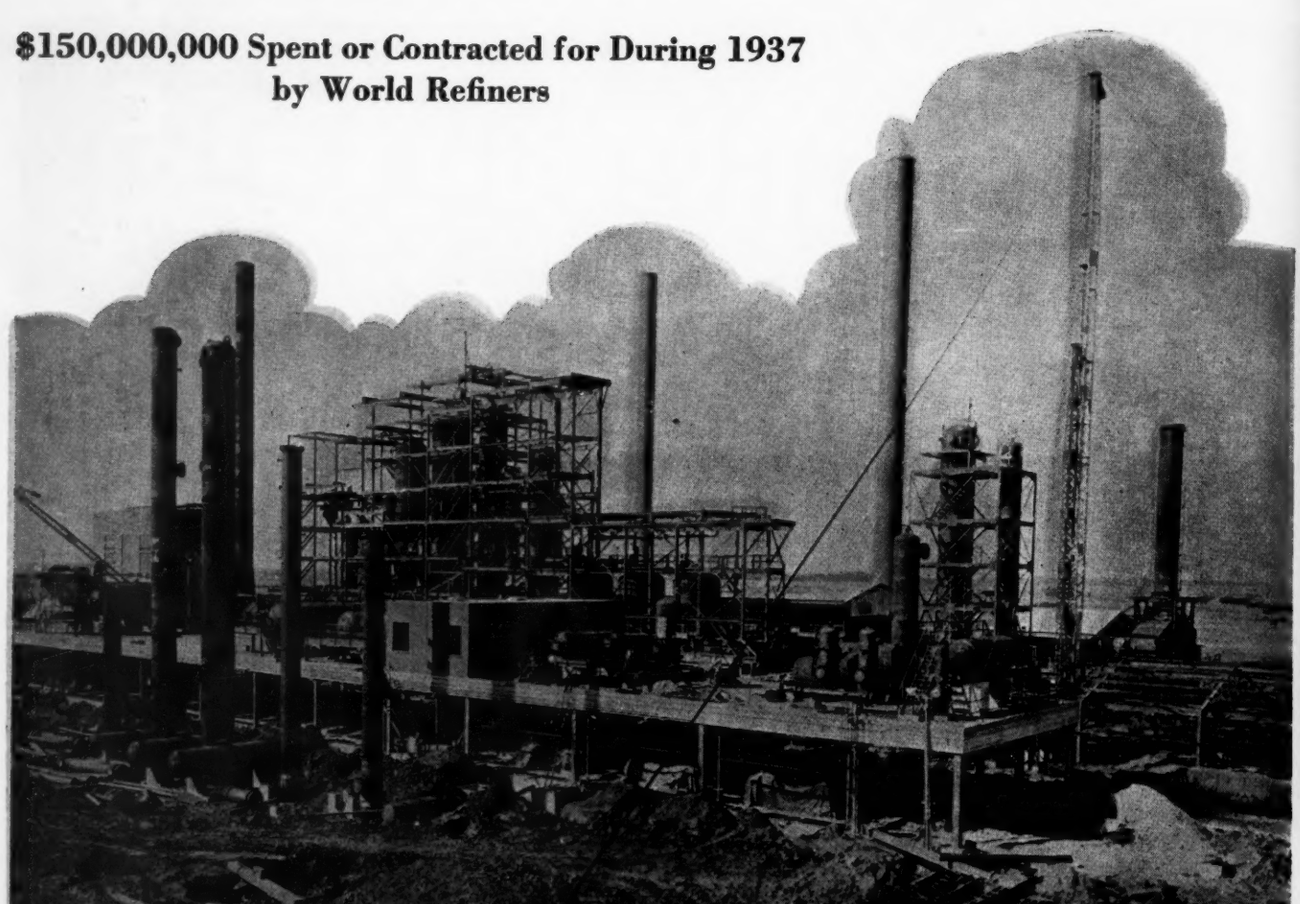

will restore or perhaps enlarge demand for lubricants in that phase of business.

As in the United States, consumption of petroleum products is expected to register gains throughout the world. A factor lending a strong hand toward this progress is the construction of roads in many countries, which promotes the use of automobiles and thereby the use of petroleum products.

In addition, wars, whether they are liked or not, mean greater demand for virtually all oil products.

More Plant Capacity

In view of the increased consumption of petroleum products, it is to be expected that there will be much refining construction.

Current activity indicates a consistent trend toward large refining units, particularly in such areas as the Texas Gulf Coast. There is a steady increase in average capacity per refinery. Likewise, there is a definite trend toward the erection of plants near big sources of crude supply, as is again shown by the growth of plants in the Texas Gulf Coast. The same tendency appears in many countries outside the United States, with the exception of those where the state policy requires refining for the domestic market be one within national boundaries and where oil fields are few.

A survey of plants constructed during 1937, underway at this time and definitely contemplated at this time indicates a total of 120 construction jobs at 85 refineries in the United States. The estimated cost of this work is about $77,000,000. About 25 percent of the work is now under construction and scheduled for completion during 1938. The refining capacity of the United States is expected to be increased more than 500,000 barrels daily. The majority of this activity is in the Texas Gulf, particularly in the section from Houston to Port Arthur. Over 200,000 barrels added capacity for the Texas Gulf Coast was either finished in 1937, underway at this time or is contemplated. The Corpus Christi region of the Gulf Coast also is active, but the plants in this area are smaller. The remainder of Texas boosts this state's new capacity to half that underway in the United States. An inspection reveals the preponderance of cracking and reforming unit installation, and the installation of combination cracking units, polymerization and hydrogenation facilities.

In 26 countries outside the United States a total of 122 construction jobs at 86 refineries are expected to cost about $60,000,000. Approximately 25 percent of this work is either under construction or projected for 1938. Due to the political situation existing in several countries publicity of industrial activity is restricted, and it is suspected that much more foreign construction is taking place.

Much Improvement Work

Those in close contact with processing facilities of the petroleum refining branch acknowledge the fact it is not prepared to efficiently produce the demands now being made upon installed equipment. A conservative estimate is that 30 to

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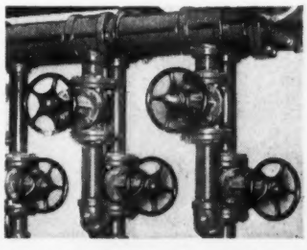

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United States Refining Capacity Continues Expanding

Tabulation shows refinery construction during 1937, that underway and definitely contemplated.

TERRITORY	Number Plants	Number of Jobs	Estimated Expenditure
Southwest	33	49	$32,500,000
Texas Gulf Coast	17	28	22,000,000
Remainder Texas	8	11	6,000,000
Louisiana Coast	3	5	3,000,000
North Louisiana-Arkansas	3	3	1,000,000
New Mexico	2	2	500,000
West Coast:			
California	8	15	15,000,000
North Mid-Continent	13	18	5,500,000
Oklahoma	5	7	3,000,000
Kansas	8	11	2,500,000
North Central	13	15	10,000,000
Michigan	5	5	1,500,000
Illinois-Indiana	4	5	4,000,000
Ohio	4	5	4,500,000
Eastern	12	16	9,500,000
New York-Pennsylvania	10	14	9,000,000
West Virginia	2	2	500,000
Rocky Mountain	6	7	4,500,000
Montana	4	4	3,000,000
Colorado	2	3	1,500,000
Total	85	120	$77,000,000

Note: Some plants had more than one construction program.

40 percent of the refining processing equipment is in need of modernization or replacement. A recent series of interviews with many refining concerns and engineering organizations indicated that there is at present more new work of this character proposed and projected than at any time during the past five years. Given a hopeful outlook for economic stability, and a fair chance for profitable operating conditions, and refining concerns will engage in a very important program of replacement, modernization and expansion immediately.

To meet the constantly growing demand for better quality motor fuels and lubricants the refining industry has expanded its capacity and improved facilities markedly during the past two years. With demand apparently scheduled to continue increasing, and with specifications becoming more exacting in virtually every country, such work must continue. Further, with technical achievement and engineering accomplishment proceeding to forge ahead rapidly, the plants of yesterday become the obsolete equipment of today, which must be replaced tomorrow.

The trend toward utilization of the combination topping and cracking unit, which started a few years ago, was given new impetus the past year, when a large number of such plants were established. Capacity of such units in the United States now totals 432,000 barrels per day, or about 20 percent of the cracking capacity of the nation.

During the past year the important role of polymerization, both thermal and catalytic, has been clarified and interpreted with sufficient definition to justify continued widespread adoption of the process, both in the United States and elsewhere.

Natural Gasoline Plants

There has been considerable activity in natural gasoline plant construction in the United States. In Texas, for example, 17 such plants have been constructed. Five were built in Louisiana, four in California, two in Kansas and one each in Oklahoma, Arkansas and New Mexico. This makes a total of 31 natural gasoline plants erected during 1937 in the nation. This work was done at an estimated expenditure of $10,000,000.

The year 1938 will see a continuation of gasoline plant construction, with the same territories probably leading.

Carbon plant industry saw several new plants built in 1938. One was at Rodessa, two in the Panhandle of Texas, and one in West Texas. Three carbon black plants are scheduled for erection in Western Oklahoma and one at Corpus Christi, Texas. This work, both for 1937 and 1938, should involve around $2,000,000 in expense.

Spend $149,000,000

With an estimated expenditure of $89,000,000 for refining, natural gasoline and carbon black plants in the United States, and an expenditure of $60,000,000 (estimated) abroad, there is a total of $149,000,000 either spent or being spent at the moment by the industry.

The industry in the United States in addition to the above figure spends around $30,000,000 to $40,000,000 for maintenance of its processing equipment, mostly for repairs. The countries abroad are confronted with the same set of conditions as American refiners.

Rapid Growth in Refineries Outside United States

Tabulation shows refinery construction during 1937, that underway and definitely contemplated.

COUNTRY	Number Plants	Number of Jobs	Estimated Expenditure
North America	8	11	$5,750,000
Canada	4	4	750 000
Mexico	4	7	5,000,000
South America	11	16	17,000,000
Argentina	3	4	4,000,000
Brazil	2	2	2,000,000
Dutch West Indies	3	6	6,000,000
Venezuela	3	4	5,000,000
Europe	57	79	28,200,000
England	6	9	3,250,000
Ireland	1	5	5,000,000
Holland	1	1	500,000
Spain	1	3	1,000,000
France	5	5	2,000,000
Germany	3	10	2,000,000
Roumania, Austria, Bulgaria	9	11	3,150,000
Czechoslovakia, Hungary, Poland	4	5	550,000
Italy	6	9	4,800,000
U. S. S. R.	21	21	6,000,000
Asia	10	18	9,000,000
Egypt	1	3	1,000,000
Bahrein	1	1	1,000,000
Iran	1	4	1,000,000
Iraq	1	1	1,000,000
Dutch East Indies	1	2	2,000,000
Japan	5	5	3,000,000
Total	86	122	$60,000,000

Note: Some plants had more than one construction program.

News Panorama

1937 headlines were generally of a favorable nature . . . prospects are the same will be true during 1938

By GRADY TRIPLETT
Staff Writer

ALL business still looks back on 1929 as the period it spent in the land of milk and honey.

But—

In 1937 petroleum product consumption reached an all-time peak of such proportions that production of the greatest quantity of oil in history did not prevent material reduction of crude stocks. Prices were somewhat higher than in 1936, and profits therefore marched in good stride with those of 1929. The number of wells drilled leaped to the second highest level in history, and the amount of footage drilled attained a new peak.

Nevertheless—

The industry did not lack in problems, despite the many records it achieved. Legal jams were as abundant as the quantity grandmother used to put up for the next winter. Legislative difficulties caused more than one severe headache. Taxes continued to rise, and the industry to squeal.

However—

Looking back on the year leaves the conviction that no one day, one week or one month was as good or as bad as it looked when the headlines were being made. For all the serious influences, the industry still produced its comedy relief. Some of its problems faded within a week, while others, like taxes, go on and on while men talk.

For Instance—

January—Cold Drafts Blow

The President asked Congress to reenact all tax laws affecting the oil industry. It did, but business went on. The Texas governor said oil was not paying sufficient tax in his state. Industry failed to agree. More of this later.

Indictments at Madison for antitrust violations were attacked by industry on grounds the jury was not chosen properly. Court failed to see it that way.

Two concerns announced crude price increase of 17 cents a barrel. Other buyers hesitated.

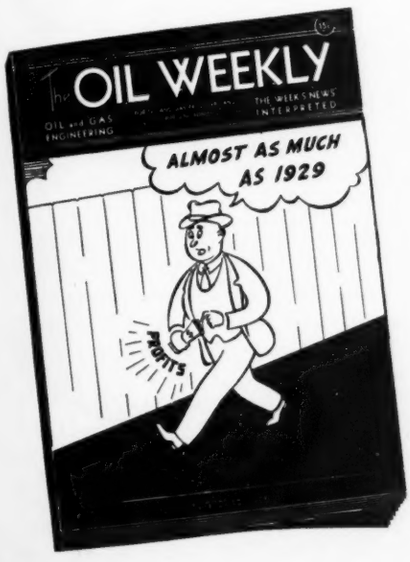
A headline said 1936 was a good year, and that 1937 would be better. It was.

First 10,000-foot commercial production found in Louisiana Coast. California not to be outdone went a few feet deeper a week later.

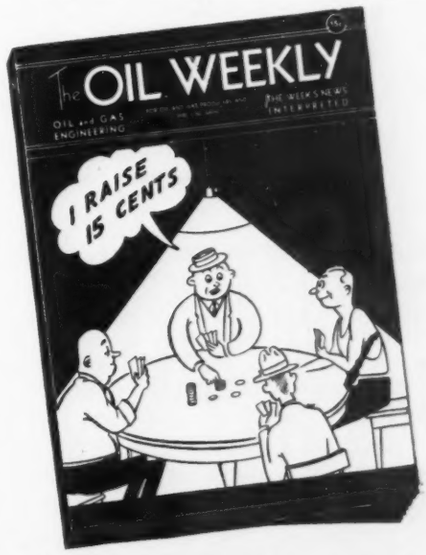
February—Bits of Sunshine

General Mid-Continent crude price increase of 15 cents a barrel announced. No one objected.

Day of arraignment at Madison



Oil company earnings in 1937 approximated 1929 peak.



Mid-Continent crude prices were advanced 15 cents in February.

set for March 3. All indications pointed to answers of not guilty. Madison home owners get ready to lift the mortgages.

Oklahoma City Wilcox zone got so weak someone said that proration would have to be lifted. It is still on. Pressures in the field became so puny pumping was predicted for the north extension area. They were going in just a year later.

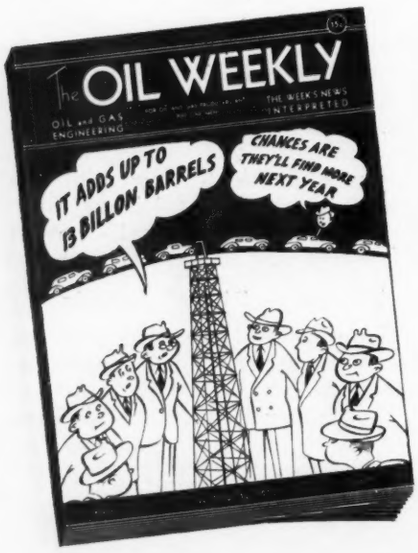
Crude production stuck its nose up to 3,201,625 barrels. It got a lot higher later.

Congress got hold of a bill to divorce retailing from other divisions. It is still on the calendar.

March—Labor Pains

CIO announced an oil country drive to put 1,000,000 men on its list of dues payers. It is still short of that total.

Illinois began to make a noise. Oklahoma and Kansas producers confident the Illinois comeback would not disturb their crude oil


The OIL WEEKLY
OIL and GAS ENGINEERING
THE WEEK'S NEWS INTERPRETED
IT ADDS UP TO 13 BILLION BARRELS
CHANCES ARE THEY'LL FIND MORE NEXT YEAR

A.P.I. estimated U. S. crude reserves totaled 13 billion.

market. A somewhat different tone was to be played later.

Pennsylvania crude prices advanced 12 to 15 cents. Mid-Continent buyers failed to follow suit. Producers not satisfied with this attitude.

March 8 pleading day at Madison. No defendant admitted guilt. Companies prepare to go to trial in October.

Prospect of great year was stated in headline that went on to say conditions were better than previous hope.

Kansas producers gathered to condemn potential taking methods.

An A. P. I. committee snooped around 350,000 United States oil wells, and came to the conclusion that present fields and present producing methods would yield 13,063,000,000 barrels of oil in the future. Not enough to last 13 years. Car owners did not show panic.

Production hit another record at 3,426,000 barrels, but was to go still higher. Producers evidently bent on getting that 13,000,000,000 barrel reserve out for examination.

Earnings statements for 1936 promised rosy reading. Prospects looked so good investors went over to the bucket shop and began to buy shares.

Charles F. Roeser predicted an early price increase. It never came.

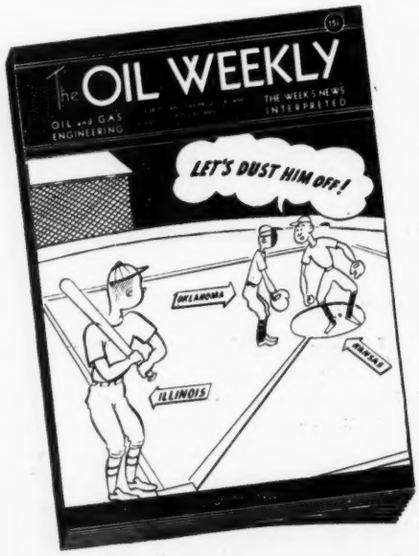
April—High Gear

CIO took its sitting chair to Texas. Texas governor said his state "would not play Michigan." CIO decided Texas not a good place to sit.

Lawyers tried to choke the trust court mill with a bundle of demurrers. Short grinding and same answer, "trial will be held."

Dorsey Hager looked at producing fields and non-producing areas, and said United States has 50,000,000,000 barrels of oil to be produced. Figures are higher than national debt, and 2½ times amount already consumed.

Rumors flew aimlessly that



Illinois staged big come-back—much to disgust of Oklahoma and Kansas.

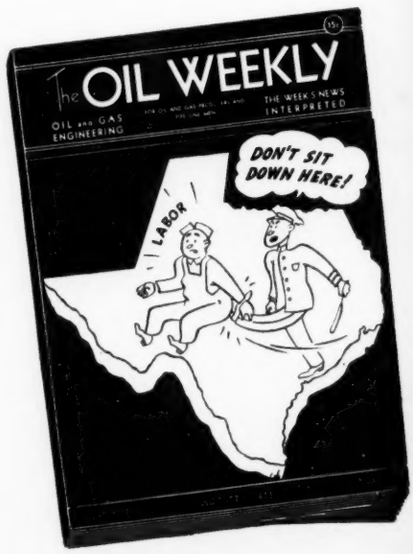
crude price increase was just around corner. It missed the corner, however, as output hit 3,481,000 barrels daily.

New strikes continued to be made in Illinois, and soon fever reached boom proportions. Then Oklahoma-Kansas operators began to worry about losing their markets to the rapidly growing output in Illinois. The new fields caused anxiety throughout the industry too, for the state does not have any proration laws. But the end of the year found it still not hurting the industry's markets, and still without proration.

May—Strong Winds

Gasoline prices do the expected —go up. Stock market prices move accordingly. Daily production passes 3,500,000 barrels for the first time in history.

A flowing well at 11,630 feet sets a record at Houma, Louisiana. However, water caused it to be



Texas informed labor unions sit down strike not wanted.

plugged back several months later to 10,600 feet.

Independent refiners found paying premium in East Texas. Price increase of 8 cents per barrel restricted to that field. Other producers yell discrimination. It is different now.

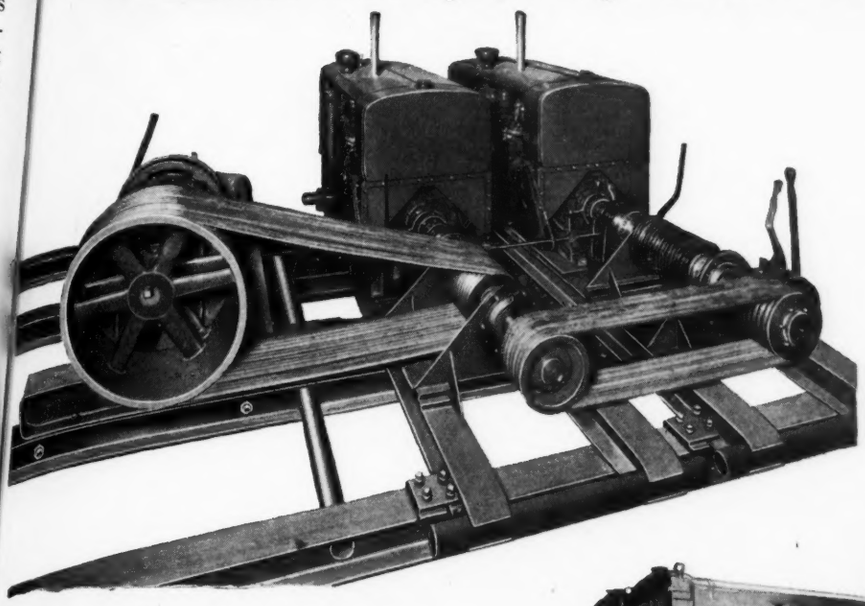
John D. Rockefeller died May 24, two years short of his 100th birthday.

June—A Sour Note

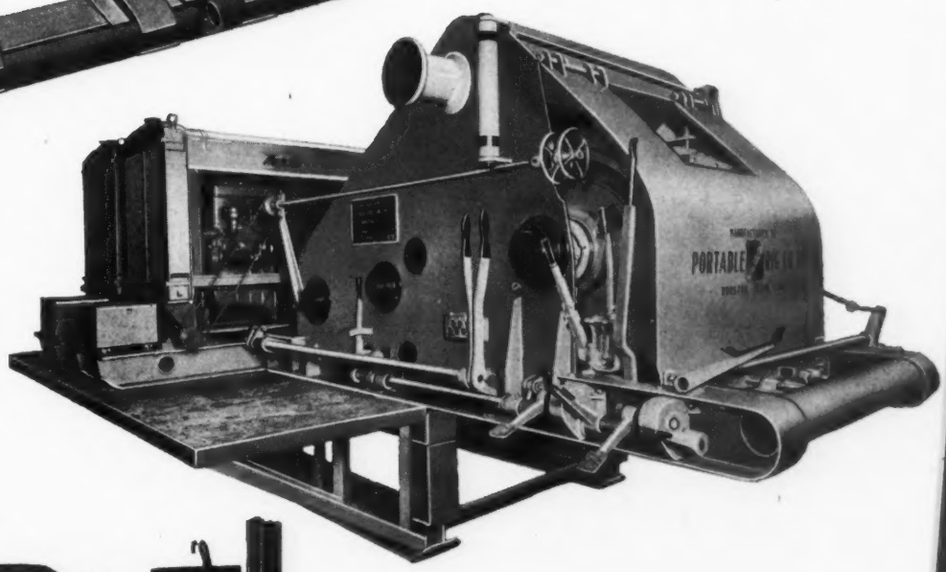
World markets on raw materials grow weak. Oil men say oil is different.

Portable Rigs

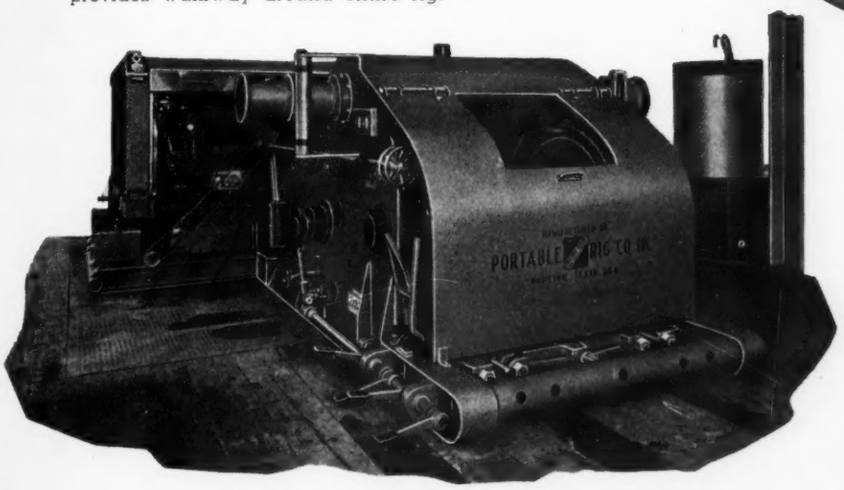
FOR 3000, 4000, AND 6000 FT. DRILLING



Left: **Model 1437 Rig,** capable of drilling to 3000-foot depths, has been designed to meet the needs of the industry in the conversion of conventional type draw works to the use of internal combustion engine power. For efficient, yet quiet operation all drives are V-belt. The wide variety of power units available, plus detailed specifications on this rig, gladly furnished upon request.



Right: **Model R-810-6 Rig,** for 4000-foot drilling, has three speeds forward and two speeds reverse on drum and rotary shafts and sand reel (optional); self-energizing brakes with double compound leverage, conventional type standard, water cooled type optional; dual engine drive (gasoline, natural gas or Diesel fuel engines) can be compounded into draw works or pumps; friction clutches on drum and rotary shafts; force feed lubrication to all chains, bearings, sprockets and shafts; substructure provides walkway around entire rig.



Left: **Model R-876-8 Rig,** for 6000-foot drilling, consists of Draw Works, Dual Engine Compounding Drive, 2 engines of suitable size, and substructure. Note all controls readily accessible to driller. Has 8 speeds forward and 6 reverse on drum. Rotary shaft, and sand reel if specified (reel optional). Dual Drive (gasoline, natural gas, or Diesel fuel engines) can be compounded into draw works or pumps. Air controlled engine clutches.

For full details on these rigs refer to Pages 1709-36, your 1938 Composite Catalog

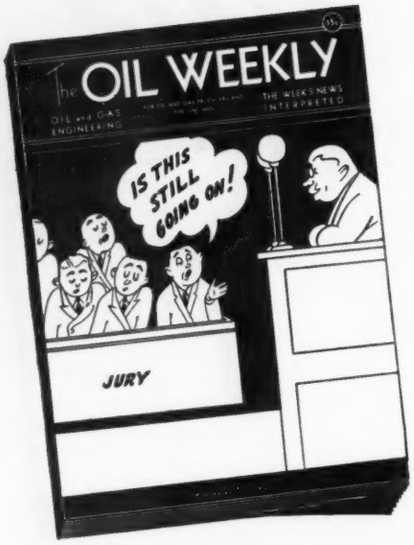
PORTABLE POWER PORTABLE RIG CO. ECONOMY **RIG CO. INC.**

EXPORT: 30 ROCKEFELLER PLAZA, NEW YORK CITY, U.S.A.

HOUSTON, TEXAS

BRANCHES — DALLAS, LONGVIEW, CORPUS CHRISTI and TULSA

EXCLUSIVE PACIFIC COAST DISTRIBUTORS: WAGNER-MOREHOUSE, INC., LOS ANGELES, CALIFORNIA



Big anti-trust suit started in October and extended into 1938.

Men greet each other with "what do you think of that Supreme Court Bill?"

Price increase of 15 cents a barrel in Pennsylvania again failed to change Mid-Continent postings.

Rodessa was extended into Arkansas, and thereby became a three state field.

Union drive for membership in oil industry reaches new peak.

July—A Heat Wave

Consumption sets a record then breaks it and sets another. Production does likewise.

Heat waves over the land, but stock market cools off. All industry points fingers at Washington. Washington points finger at industry.

A few price increases prove to be only local showers.

The Illinois play looks so good producers, suppliers and contractors begin picking places to live. They are hard to locate, too.

Wasson becomes prominent. It continued to grow the remainder of the year, and is one of outstanding strikes of 1937.

August—High and Low

All of a sudden someone learned that too much crude was coming out of the ground. Before the month ended the nation's output hit 3,710,000 barrels daily, an all-time high. Each state said the other was responsible. No one desired to put oil in storage.

Government announced ready for trial at Madison. Lawyers for defense said nothing but got ready.

Rapid decline in East Texas bottom-hole pressure brought predictions that the field would be depending on the pumps soon. It fooled us so many times in the past, and was to do the same two months later.

September—Downward Turn

Crude buyers sliced 22 cents a barrel off the price in Pennsylvania. Low barometer reading recorded in the Mid-Continent. Disturbance found to be local.

Texas legislature called into special session to find enough taxes to wipe out a $12,000,000 state defiicit. Oil was slated for the branding iron. The state senate never did see eye to eye or hear ear to ear with its governor, and failed to slap on any more oil taxes.

Wars in foreign areas cause increase in export shipments.

October—Trials and Tribulations

October 4 found the jury in the box at Madison. Defendants branded as plutocrats by a Wisconsin editor, who charged them with wearing $14 shoes. Another found one defendant wearing $4 brogans. Inspection now might

Houston dedicated a new government building with the Oil-World Exposition. Harold L. Ickes came down to tell the I.P.A.A. that state control looked better than it did 1066 days previous, but a few weeks later was to ask for the creation of a department of conservation in which he said "unbridled exploitation of natural resources must cease."

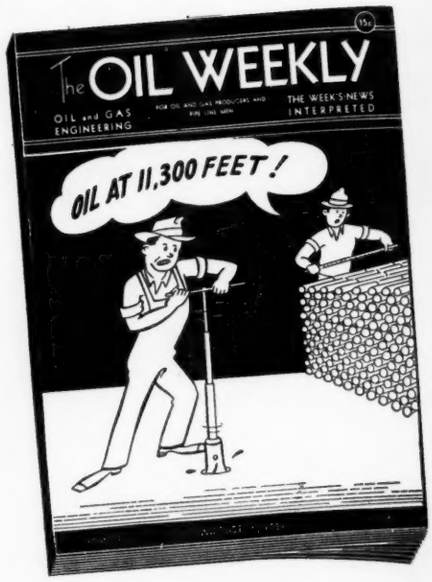
The special Texas legislative session adjourned without passing oil taxes.

Labor strikes become more numerous in the industry.

East Texas field celebrates its seventh birthday, and it develops that bottom-hole pressures gained a pound during the month after having dropped for several months.

November—Out of Control

American Petroleum Institute annual meeting in Chicago. Business in Madison prevented some directors from attending. Colonel E. O. Thompson came to Chicago and suddenly decided that the nation's crude oil output should be reduced 175,000 barrels daily. Terrell responded from Austin that Texas would accept 40 percent of that. Accordingly, Texas issued a mid-month cut of 133,000 barrels



First production below 11,000 feet was found during the year.

daily, and requested that East Texas shut down completely on the following four Sundays. E. W. Marland at Oklahoma City said his legislature would increase taxes if anybody reduced the price of crude oil.

Gasoline prices, which have tumbled steadily since October 1, became firmer at the end of the month—due to the Texas allowable cut. Thereby relieve fears that crude prices were to be slashed.

Defense completes its case at Madison, and requests that some defendants be released. Defense attorneys in starting their side of the argument seek dismissal. By the end of the month charges dismissed against 7 corporations, 3 trade journals and five individuals.

Boom in the old K-M-A field starts. Lease prices soar, and it promises to become one of North Texas' biggest fields.

Special session of Congress starts, with several oil subjects up for discussion. Among these wages and hours, depletion taxes, etc.

An 11,302 foot producing well in California becomes the deepest in the world.

More labor strikes.

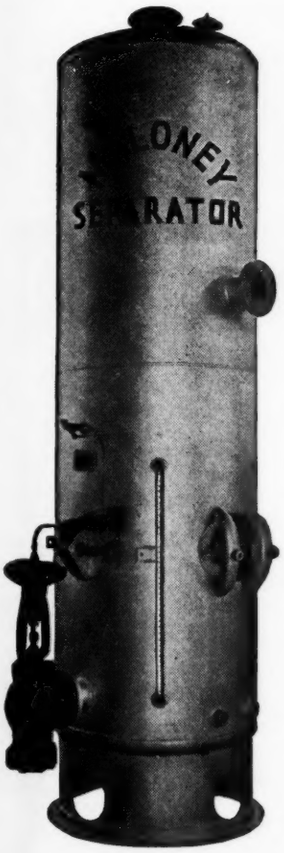
December—Finale

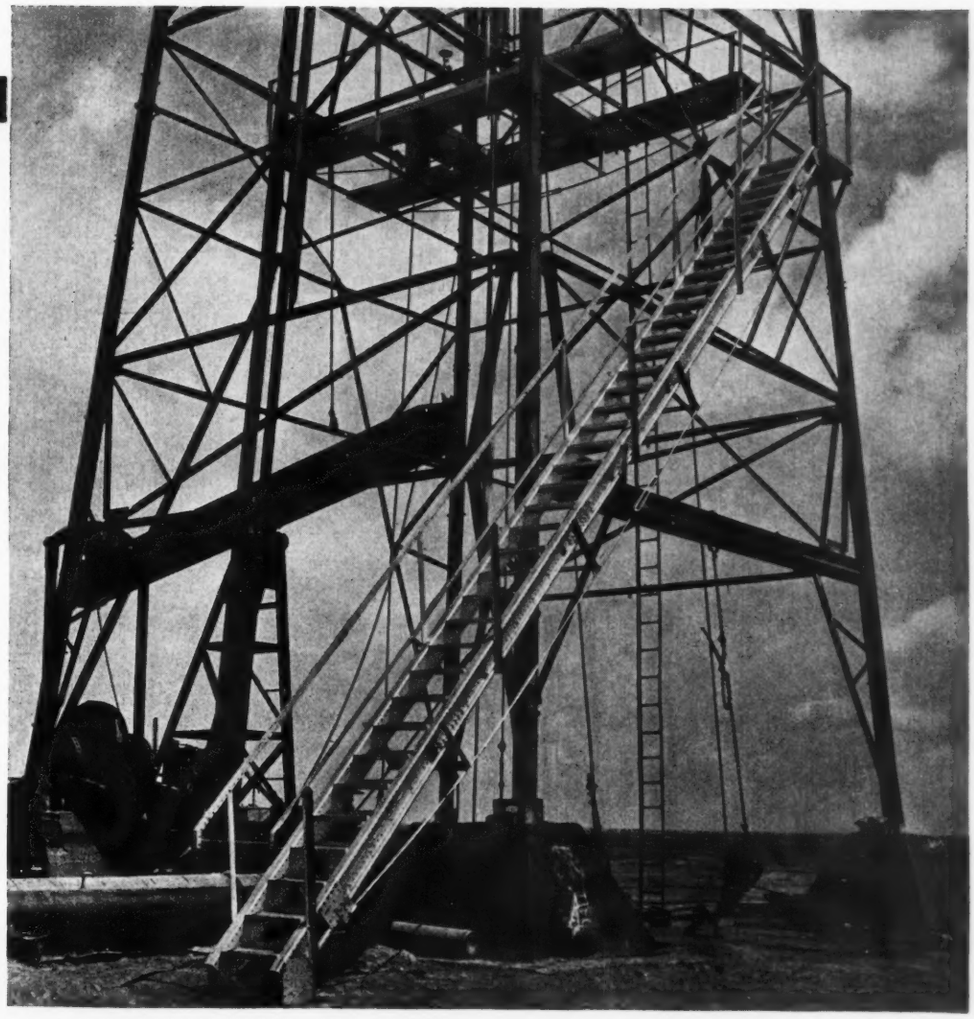
Other states follow Texas' lead and cut allowables. Crude and gasoline prices stabilize themselves.

More defendants released at Madison, but it developed industry

NEW MALONEY SEPARATOR

The new MALONEY SEPARATOR offers a number of important improvements. Increased capacity of initial chamber provides higher vertical travel for gases before entering Knock-Out Element. Patented Mist Traps of improved design remove all oil and allow only dry gas to pass through. Valves are latest and best. Boiler-type manhole plates, held by two bolts, are far superior to old-type plates. Code requirements of A.P.I. and A.S.M.E. fully met.





MALONEY Stairway and Walkways Used on Derrick, Pure Oil Company, Edmund, Okla.

IDEAL FOR DERRICK STAIR AND PLATFORM

It pays to equip modern steel derricks with modern steel stairways and platforms.

You avoid costly accidents. You increase efficiency. Men mount stairway with speed and safety, using *both* hands to carry tools.

MALONEY Sectional Steel Stairways and Walkways are "made-to-order" for this service. Of cantilever construction, they do away with obstructing ground supports, yet are strong, rigid, firm. Positive non-skid tread promotes safety. Constructed of 4, 6 and 8-foot units of 26" width, they are adaptable for every condition, are easily assembled and taken down, can be re-set on either derrick or tanks.

Construction is of 12-gauge Blue Annealed Copper Steel. Walkway units are welded at all corners, with cross supports welded beneath tread every 2 feet. Galvanized or painted with our special Red Chromated Iron Oxide Primer and heavy Aluminum Finish Coat.

MALONEY TANK MFG. COMPANY

38 N. PEORIA — TULSA, OKLA.

MALONEY PATENTED BOLTED COPPER-STEEL TANKS

to face another anti-trust suit. This time "Jimmie Allred's" four-year suit in Texas was set for year next October 3.

Governor Marland dared the federal government to put a governor in jail for "talking price." In conservation he classed price as the thing, and invited other governors to meet and "talk price." Governor Allred saw a jail door. Others promised Marland they would meet with him in January.

Fuel oil sales for heating purposes reach new peak. Too much gasoline coming out of refineries along with the needed fuel oils, and gasoline storage jumps to 22 percent over last year.

The special session of Congress adjourned without having passed an oil bill. The industry now awaits the regular session in January with the same fear and trembling it did the special session that did it no damage.

The second 11,000-foot producing well was completed in California. Wonder what they will do in 1938? Louisiana Gulf Coast expects 12,000-foot production. How deep is oil?

For the year and for the nation, production set a new high and so did consumption. Wells completed reached second highest level in history. Earnings were good, many companies gave nice Christmas bonuses to employes. Many new fields were found, with Southwest Texas shouting it had 105 new fields, extensions or sands to show for the 12 months.

1938—Hopeful Anticipation

A new show opens, but many of the old actors will be in the cast. For example, such familiar names as trust trials, proration, taxation, legislation, and prices. All these are taking part in the opening chorus: the Madison trust suit continues; proration is being enforced more strenuously; Congress is in session, with taxes and other legislative affairs scheduled to come up; and prices are more important than usual, with some fearing lower crude postings and Governor Marland's friends openly discussing the matter.

There will be headlines on other subjects too, for instance:

Drilling—Many wells will be completed, and at increasingly greater depths.

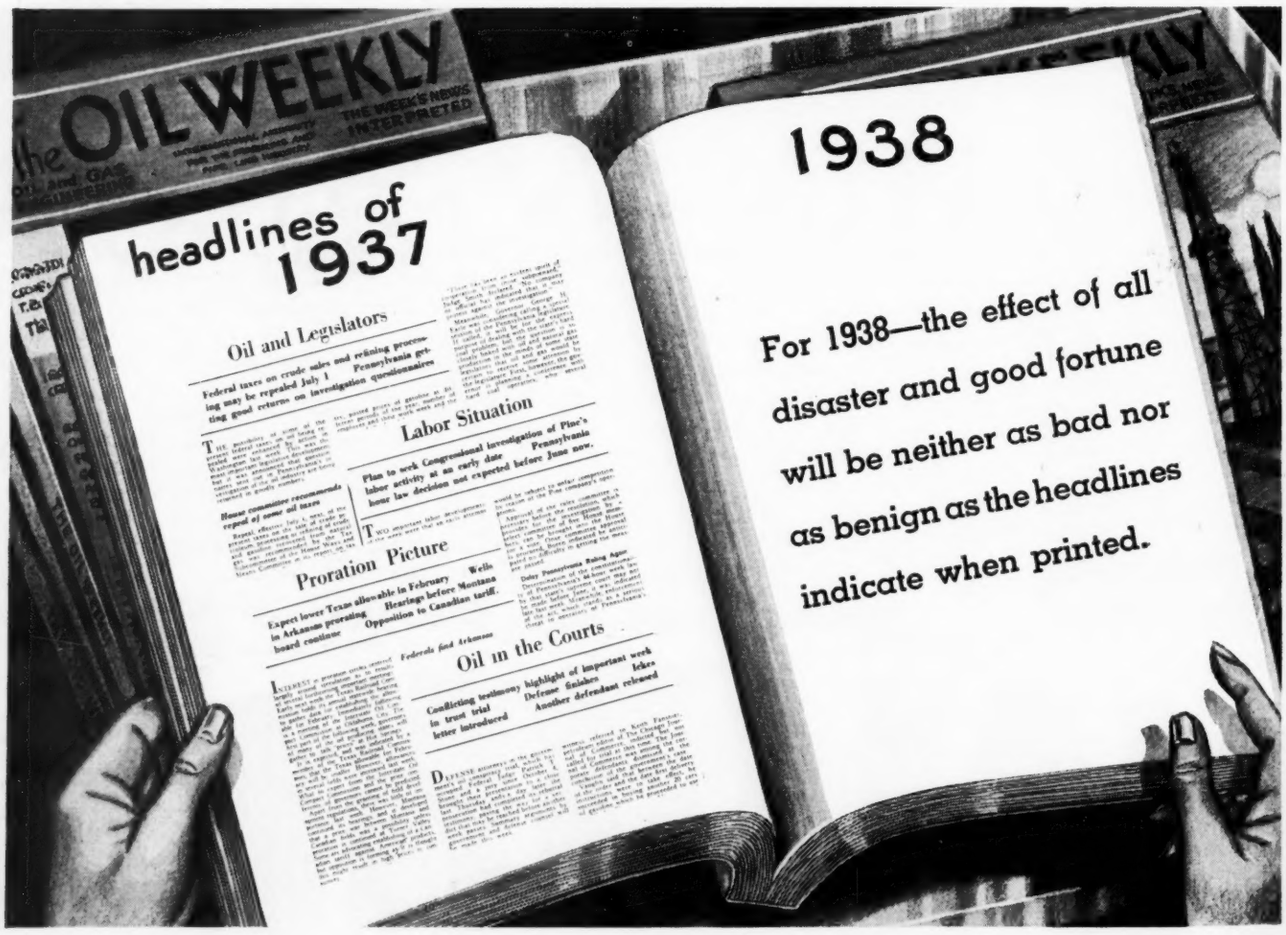
Consumption—A new all-time peak for gasoline, perhaps five percent ahead of last year. Fuel oils will increase even more.

Production—We guess a record-breaking level, in order to meet demand.

Prices and Earnings—Everything depends upon how well things are controlled the next three months, but whatever the trend these headlines will be plentiful indeed.

As for that recession in business, 1938 is going to answer the debate as to whether it is a temporary lull or a slide of longer duration.

But whatever happens in 1938, we venture to say that when we can look back on them they will not seem as good or as bad as when the headlines were being written.


the OIL WEEKLY
THE WEEK'S NEWS INTERPRETED
headlines of 1937
Oil and Legislators
Federal taxes on crude sales and refining processing may be repealed July 1
Pennsylvania getting good returns on investigation questionnaires
Labor Situation
Plan to seek Congressional investigation of Pine's labor activity at an early date
Pennsylvania home law decision not expected before June now.
Proration Picture
Expect lower Texas allowable in February
Wells in Arkansas prorating
Hearings before Montana board continue
Opposition to Canadian tariff.
Oil in the Courts
Federals find Arkansas
Conflicting testimony in trust trial
highlight of important week
Defense finishes
Another defendant released
1938
For 1938—the effect of all disaster and good fortune will be neither as bad nor as benign as the headlines indicate when printed.

Production

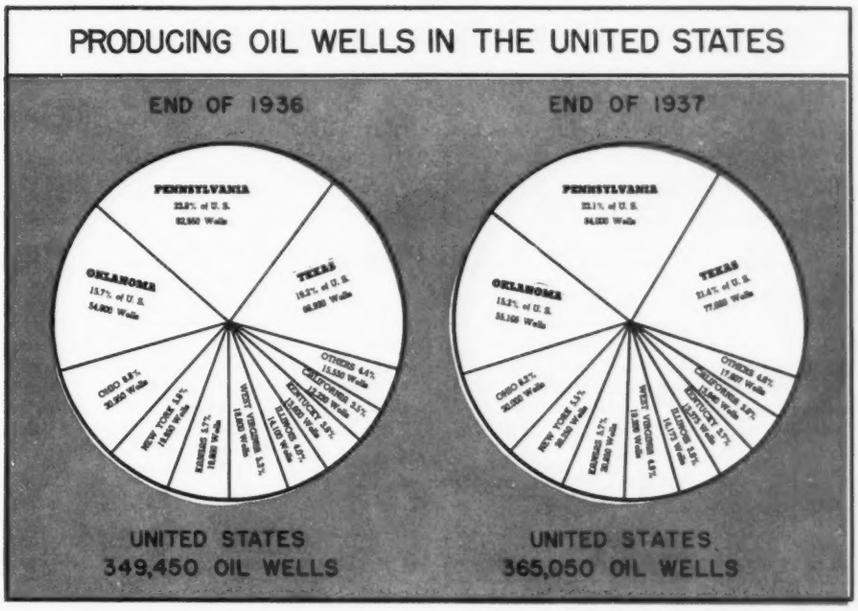
[*Continued from page 31*]

13 percent a year having occurred in the meantime.

In reaching the new all-time peak of 2,021,171,000 barrels in 1937, world production of crude oil rose 13.2 percent above the previous peak of 1,785,372,655 barrels in 1936.

As indicated before, the United States contributed more than a proportionate share toward that world increase, as its output of 1,277,364,000 barrels in 1937 was 16.1 percent larger than the previous record amount of 1,099,687,000 barrels produced in 1936.

Consequently, the United States proportion of the world output rose in 1937 to 63.2 percent, whereas the country in the previous year accounted for only 61.5 percent of the world total.



In producing 743,807,000 barrels in 1937, the countries outside the United States, in the aggregate, showed an increase of 8.5 percent over the 685,685,655 barrels produced in 1936.

Nevertheless, because of the sharp gain in the United States,

Record Number of Oil Wells Produced in 1937 in Response to All-Time Peak Demand

PRODUCING OIL WELLS AT END OF YEAR, BY STATES AND DISTRICTS, BY YEARS

Showing approximate number of oil wells at end of year, and average daily production per well, in barrels. Source: Bureau of Mines.

END OF YEAR	ARKANSAS		CALIFORNIA		COLORADO		ILLINOIS		INDIANA		KANSAS		KENTUCKY		LOUISIANA		MICHIGAN		MONTANA	
	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	550	72.0	9,980	32.0	80	3.2	16,650	1.5	2,600	1.1	17,200	5.1	9,200	2.7	3,000	26.7	.....	....	90	56.6
1922	964	54.6	8,916	55.3	75	3.2	16,725	1.4	2,550	1.1	17,900	4.4	10,600	2.1	3,500	23.6	.....	....	150	52.0
1923	1,970	46.0	9,396	74.9	60	3.8	16,674	1.3	2,300	1.1	17,750	4.2	11,700	1.7	3,630	15.8	.....	....	280	20.5
1924	3,050	33.5	11,320	53.6	70	25.8	16,400	1.2	2,140	1.0	12,450	4.0	12,450	1.5	3,550	15.0	.....	....	380	18.9
1925	4,100	49.5	11,070	56.6	80	64.1	16,280	1.3	2,000	1.0	18,600	5.6	13,100	1.3	3,750	14.4	[a]	[a]	590	21.1
1926	4,500	29.6	11,330	58.1	130	60.3	16,270	1.3	2,050	1.1	19,230	6.0	13,300	1.3	4,190	14.9	90	9.3	830	14.3
1927	4,550	24.2	11,280	55.9	170	51.7	16,240	1.2	2,060	1.1	19,600	5.8	13,500	1.4	4,250	14.8	300	6.2	980	15.3
1928	4,520	19.3	10,710	57.6	210	39.9	16,340	1.1	2,040	1.4	19,800	5.4	13,740	1.5	3,820	14.8	400	4.6	1,100	10.5
1929	3,900	16.2	10,520	75.5	220	30.0	16,000	1.1	1,950	1.3	20,080	5.9	14,650	1.5	3,780	14.8	500	27.6	1,290	9.1
1930	3,850	13.9	9,450	62.4	240	19.7	15,800	1.0	1,740	1.5	20,120	5.7	14,400	1.4	3,930	16.5	640	18.8	1,410	6.8
1931	3,280	11.4	8,910	56.4	200	19.2	15,540	.9	1,650	1.4	19,120	5.2	12,420	1.3	3,190	16.8	630	16.3	1,420	5.5
1932	2,880	10.7	8,900	54.7	190	15.9	15,170	.8	1,505	1.4	18,300	5.1	13,510	1.3	3,050	19.1	645	29.6	1,420	4.7
1933	2,890	11.1	10,990	47.4	190	13.3	14,930	.8	1,220	1.5	18,500	6.3	14,100	.9	3,200	22.1	830	29.5	1,440	4.4
1934	2,800	10.8	11,750	42.0	190	16.4	14,630	.8	1,230	1.9	18,550	6.9	13,900	1.0	3,140	28.4	980	32.1	1,400	7.0
1935	2,680	11.1	12,780	46.4	200	21.9	14,330	.8	1,220	1.7	19,250	7.9	13,800	1.0	3,400	42.2	1,160	40.4	1,650	8.3
1936	2,670	10.7	12,230	46.9	210	22.0	14,100	.9	1,230	1.8	19,800	8.2	13,600	1.1	3,800	61.1	1,360	25.9	1,470	10.3
1937[f]	2,739	16.7	13,840	51.1	195	22.4	14,173	2.3	1,500	1.5	20,850	8.5	13,375	1.1	4,418	55.7	1,780	29.0	1,400	10.5

END OF YEAR	NEW MEXICO		NEW YORK		OHIO		OKLAHOMA		PENNSYLVANIA		TEXAS		WEST VIRGINIA		WYOMING		OTHERS		UNITED STATES	
	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well	No. of Wells	Output per Well
1921	.....	....	13,500	.2	37,000	.5	56,200	5.5	73,700	.3	13,300	23.2	20,000	1.1	1,450	443.3	.....	....	274,500	4.9
1922	.....	....	14,300	.2	39,300	.5	57,500	7.5	75,000	.3	14,450	18.0	20,200	.9	1,750	53.6	.....	....	284,880	5.7
1923	.....	....	14,640	.3	39,550	.5	57,500	6.9	74,000	.3	18,250	19.3	20,100	.8	2,300	59.7	[b]	[b]	290,100	6.6
1924	[a]	....	15,000	.3	38,900	.5	60,500	8.1	74,350	.3	20,350	17.2	20,000	.8	2,570	26.9	[c] 70	....	299,100	6.2
1925	140	32.3	15,580	.3	39,060	.5	59,400	7.7	75,900	.3	23,400	14.7	19,940	.8	3,080	24.8	[d] 30	....	306,100	6.5
1926	230	24.7	16,150	.4	39,250	.5	61,600	9.3	76,800	.3	29,030	20.0	20,150	.8	3,400	17.3	[c] 70	....	318,600	6.8
1927	250	14.0	16,740	.4	37,600	.5	61,750	10.3	78,480	.3	32,000	19.5	19,900	.8	3,560	16.8	90	....	323,300	7.7
1928	260	10.1	16,500	.4	37,900	.5	62,900	11.0	78,600	.3	35,750	20.8	19,600	.8	3,520	16.6	90	....	327,800	7.6
1929	270	18.9	16,800	.6	37,210	.5	61,180	11.3	80,320	.4	36,280	22.6	19,650	.8	3,530	15.0	70	....	328,200	8.4
1930	460	76.5	17,100	.6	36,530	.5	63,600	9.5	80,560	.4	38,060	21.4	19,600	.7	3,520	13.9	60	....	331,070	7.5
1931	430	93.7	17,600	.5	34,800	.4	56,720	8.2	79,930	.4	37,650	24.1	18,900	.6	3,410	11.7	40	....	315,850	7.2
1932	490	74.0	17,680	.5	34,530	.4	57,100	7.4	80,380	.4	43,630	21.0	18,850	.6	3,200	11.1	70	....	321,500	6.7
1933	540	75.1	18,270	.5	33,600	.3	56,850	8.3	78,720	.4	48,100	24.0	19,000	.6	3,400	9.3	80	....	326,850	7.7
1934	640	78.3	19,330	.6	32,650	.4	56,650	8.7	80,200	.5	52,300	20.8	19,200	.6	3,410	10.1	120	....	333,070	7.5
1935	840	75.8	19,600	.6	32,100	.3	54,600	9.1	82,050	.5	59,110	19.3	18,710	.6	3,380	11.1	130	....	340,990	8.1
1936	1,250	71.2	19,950	.6	30,950	.3	54,800	10.3	82,950	.6	66,920	18.5	18,600	.6	3,420	11.7	140	....	349,450	8.7
1937[f]	1,975	54.3	20,250	.7	30,000	.3	55,105	10.0	84,000	.6	77,650	17.4	18,200	.6	3,450	14.4	150	....	365,050	9.5

[a] Included under "Others." [b] Figures not available. [c] Alaska, New Mexico, Tennessee and Utah. [d] Alaska, Michigan, Tennessee and Utah. [e] Alaska, Tennessee and Utah. [f] Estimated by The OIL WEEKLY with aid of state officials and others.

those countries in 1937 accounted for only 36.8 percent of the world total, as compared with 38.5 percent in 1936.

Incidentally, the production of 743,807,000 barrels outside the United States in 1937 was nearly as much as the 785,159,000 barrels produced in the United States in 1932.

Accompanying tables and charts present details on production by years in the various countries of the world and in the various states in the United States. Following this article there are also tables showing production in 1936 and 1937, and cumulative for all years, in many of the more important fields of the United States, as well as similar figures by major districts of the country.

United States Crude Oil Production, by Fields, 1936, 1937, and Cumulative

The figures given herewith for 1936 and 1937 have been calculated by The OIL WEEKLY from weekly reports of the American Petroleum Institute.

Cumulative production figures, indicating output in all years through 1937, embody data published by The OIL WEEKLY January 25, 1937, beginning page 92. In that issue, tables were presented showing production of all United State fields, by years, back to discovery.

The figures shown here for 1936 and 1937 differ, although only slightly, from those in another table in this issue, entitled, "United States Crude Oil Production, by States, By Years." The differences arise from the fact that table is based on United States Bureau of Mines data, while the figures given here are based on the American Petroleum Institute weekly estimates.

United States Summary

STATE OR DISTRICT	Year of First Prod.	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Arkansas	1921	10,676,450	12,136,100	441,936,350
California	1876	214,883,624	238,584,926	4,911,475,449
Colorado	1887	1,642,800	1,568,450	35,415,820
*Eastern States	1859	40,019,850	45,181,700	2,733,810,130
Kansas	1889	56,620,350	68,405,300	898,297,020
*Louisiana	1902	80,816,300	91,307,900	767,849,943
Michigan	1925	11,852,000	16,189,100	82,769,405
Montana	1916	5,701,100	6,036,200	65,620,989
New Mexico	1924	26,769,147	39,057,100	162,381,244
Oklahoma	1891	200,639,400	224,000,300	4,264,606,767
*Texas	1889	426,442,300	511,381,350	5,175,051,602
Wyoming	1894	14,238,100	19,486,350	434,263,425
Total United States	1859	1,090,301,421	1,273,334,776	19,973,498,144

* Summary by districts appears among following tables.

Arkansas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Champagnolle, Union	1928	979,900	349,650	12,416,600
El Dorado, Union	1921	774,250	725,750	53,825,550
Rodessa, Miller	1937	.....	1,240,150	1,240,150
Schuler, Union	1937	.....	1,079,950	1,079,950
Smackover, Ouachita-Union	1922	7,273,950	6,915,150	349,965,250
Unclassified	....	1,648,350	1,825,450	23,408,850
Total	1921	10,676,450	12,136,100	441,936,350

California

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
San Joaquin Valley:				
Belridge, North, Kern	1935	3,904,502	5,721,423	12,339,351
Belridge, South, Kern	1935	732,236	636,658	2,284,835
Canal, Kern	1937	.....	34,900	34,900
Coalinga, Kings	1896	6,078,487	5,791,317	352,465,115
Edison, Kern	1934	2,537,981	1,582,654	4,719,774
Elk Hills, Kern	1919	3,193,843	3,794,408	142,177,113
Fruitvale, Kern	1928	2,915,303	3,230,733	15,114,570
Greeley, Kern	1937	.....	500,352	500,352
Kern River, Kern	1900	5,160,087	5,634,836	311,573,377
Kettleman Hills, Middle Dome, Kings	1932	138,712	49,756	520,831
Kettleman Hills, North Dome, Kings	1928	29,159,321	29,085,163	176,404,404
Lost Hills-Belridge, Kern	1910	.....	.....	75,262,082
Lost Hills, Kern	1935	1,344,525	1,433,028	4,539,531
McKittrick, Kern	1898	777,716	1,313,735	87,048,086
Midway-Sunset, Kern	1900	21,497,927	26,498,675	832,825,095
Rio Bravo, Kern	1937	.....	100,139	100,139
Mountain View, Kern	1933	9,728,938	6,834,999	28,641,529
Mt. Poso, Kern	1927	6,754,457	6,694,708	37,217,259
Round Mountain, Kern	1927	3,963,135	4,813,394	16,692,364
Ten Section, Kern	1936	193,270	926,326	1,119,596
Wheeler Ridge, Kern	1923	129,360	118,888	3,468,104
District total	1896	97,708,900	104,796,092	2,105,048,407
Coastal District:				
Capitan, Santa Barbara	1930	569,125	921,049	2,309,650
Elwood Goleta, Santa Barbara	1927	4,478,182	3,206,752	62,207,006
Rincon, Ventura	1927	751,101	1,080,826	8,348,228
San Miguelito, Ventura	1931	582,084	1,141,331	2,954,981
Santa Barbara, Santa Barbara	1930	508,227	246,888	3,036,037

(*Continued on next column*)

California—(Continued)

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Coastal District (Continued):				
Santa Maria-Lompoc, Santa Barbara	1902	1,668,545	3,894,857	138,683,663
Summerland, Santa Barbara	1894	12,951	12,439	3,137,095
Ventura Avenue, Ventura	1926	12,614,135	12,683,504	176,275,242
Ventura Co.-Newhall	1859	1,700,622	1,839,699	69,203,822
Watsonville	1930	21,972	21,990	178,209
District total	1859	22,906,944	25,049,335	466,333,933
Los Angeles Basin:				
Brea-Olinda (Fullerton) Los Angeles	1897	2,963,900	2,662,488	160,729,932
Coyote, Los Angeles	1912	.....	.....	139,529,702
Coyote East, Los Angeles	1935	910,757	1,390,835	3,288,297
Coyote West, Los Angeles	1935	3,029,374	2,900,983	9,484,069
Dominguez, Los Angeles	1923	9,708,216	9,839,519	97,304,808
El Segundo, Los Angeles	1937	.....	3,616,541	3,616,541
Huntington Beach, Orange	1920	13,304,146	13,284,742	259,407,912
Inglewood, Los Angeles	1924	4,543,443	5,523,889	106,601,396
Lawndale	1930	145,536	31,926	737,048
Long Beach, Los Angeles	1921	25,027,733	21,870,246	598,740,028
Los Angeles-Salt Lake, Los Angeles	1894	304,534	250,904	65,551,235
Montebello, Los Angeles	1917	3,216,420	3,179,359	103,719,597
Newport, Orange	1930	.....	.....	22,525
Playa Del Rey, Los Angeles	1929	4,549,318	3,187,618	41,202,404
Portrero, Los Angeles	1927	112,326	111,673	2,274,731
Richfield, Los Angeles	1919	2,443,012	3,139,370	83,108,705
Rosecrans, Los Angeles	1924	805,169	1,230,167	32,406,164
Santa Fe Springs, Los Angeles	1921	16,458,089	15,750,438	433,991,442
Seal Beach, Los Angeles	1926	3,462,100	3,414,203	79,062,084
Torrance, Los Angeles	1922	2,836,538	2,840,357	85,893,548
Whittier, Los Angeles	1912	347,169	333,761	17,327,832
Wilmington, Los Angeles	1937	.....	14,183,780	14,183,780
Miscellaneous	1894	.....	.....	.....
District total	1894	94,267,780	108,739,499	2,340,093,109
Total California	1859	214,883,624	238,584,926	4,911,475,449

Colorado

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Florence, Fremont	1887	69,250	28,650	13,384,156
Fort Collins and Wellington, Larimer	1924	123,300	90,650	6,755,550
Iles, Moffat	1925	1,182,400	1,038,900	6,199,550
Moffat, Moffat	1924	157,700	151,700	5,446,600
Price	1937	.....	128,850	128,850
Unclassified	1909	110,150	129,700	3,501,114
Total	1887	1,642,800	1,568,450	35,415,820

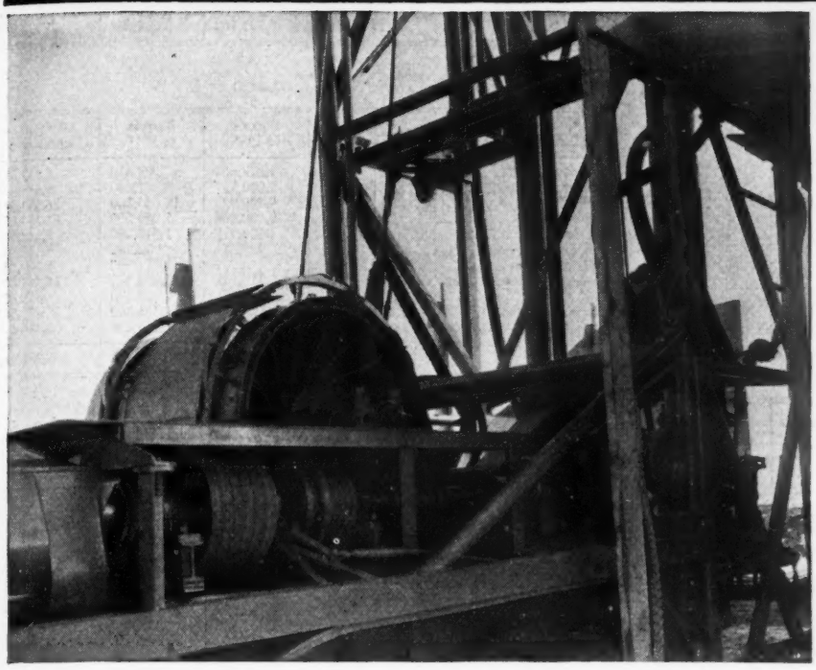
Eastern States

STATE OR DISTRICT	Year of First Prod.	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Pennsylvania Grade:				
Allegany	....	3,302,650	3,667,150	.....
Bradford	....	14,568,400	16,725,600	.....
Kane to Butler	....	2,939,200	3,139,050	.....
Southwestern Pennsylvania	....	924,850	982,400	.....
Southeastern Ohio	1860	1,489,150	1,345,100	.....
West Virginia	1860	3,762,350	3,733,250	.....
Pennsylvania Grade Total	1859	26,986,600	29,592,550	.....
New Pools, Southern Illinois	1937	.....	2,342,650	.....
Old Pools, Illinois and Indiana	1889	.....	1,588,050	.....
Others, Eastern	....	13,033,250	11,658,450	.....
Total	1859	40,019,850	45,181,700	*2,733,810,130

* Details by states appear in this issue in table on "United States Crude Oil Production, by States, by Years."

[*Tables continued on page 146*]

Scarcely Worn After **28,500** *feet of Drilling*



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United States Crude Oil Production, by Fields, 1936, 1937, and Cumulative—(Cont.)

Kansas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Bemis	1937	.....	1,582,000	1,582,000
Bloomer, Barton	1936	168,150	1,464,850	1,633,000
Burrton-Haury, Reno	1934	4,952,200	5,187,750	18,138,950
Chase, Rice	1933	3,478,150	2,962,300	12,646,100
Eldorado-Towanda, Butler	1926	3,526,450	3,355,350	53,571,855
Genesco, Rice	1936	148,350	821,550	969,900
Graber, McPherson	1936	167,200	993,500	1,160,700
Greenwood County	1922	3,671,950	3,551,300	103,775,920
Hauschild, Rice	1936	253,900	851,200	1,105,100
Hollow-Nikkel, Harvey	1936	1,490,350	1,122,700	2,613,050
Keesling, Rice	1936	710,050	615,350	1,325,400
Lerado	1937	.....	603,800	603,800
Lorraine, Ellsworth	1935	2,613,800	1,638,400	5,548,300
Oxford, Sumner	1928	1,940,550	703,000	12,158,300
Raymond, Rice	1931	1,114,200	718,200	4,859,500
Rits-Canton, McPherson	1934	2,372,450	1,980,100	12,137,250
Russell County	1925	7,015,450	11,108,250	34,872,147
Sedgwick County	1928	1,972,900	1,523,000	39,774,750
Silica, Rice	1936	3,757,950	6,373,300	10,452,600
Steckel-Isern, Barton	1935	.....	.....	.....
Voshell, McPherson	1930	1,125,950	935,550	21,306,550
Wellington	1937	.....	1,077,600	1,077,600
Unclassified	1889	16,140,350	19,236,250	556,984,248
Total	1889	56,620,350	68,405,300	898,297,020

Louisiana Summary

DISTRICT	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
North Louisiana	1906	26,938,000	28,610,650	442,663,400
South Louisiana	1902	53,878,300	62,697,250	325,177,543
Total	1902	80,816,300	91,307,900	767,849,943

North Louisiana

FIELD AND PARISH	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
Caddo Parish	1906	2,386,900	2,363,400	145,550,086
Cotton Valley, Webster	1924	.....	880,050	15,538,650
DeSoto Parish	1914	504,600	538,550	18,138,470
Haynesville, Claiborne	1921	1,217,050	1,164,750	66,417,800
Homer, Claiborne	1919	948,550	919,300	65,889,900
Lisbon	1937	.....	2,275,000	2,275,000
Rodessa, Caddo	1935	19,003,750	17,826,000	38,126,450
Urania, La Salle-Grant-Winn	1925	1,015,750	1,022,150	21,358,050
Zwolle, Sabine	1929	410,050	71,350	12,992,500
Unclassified	1919	1,220,200	1,550,100	56,171,544
Total	1906	26,706,850	28,610,650	442,463,450

South Louisiana

FIELD AND PARISH	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
Bayou St. Denis, Jefferson	1935	2,355,350	4,109,600	6,984,102
Big Lake, Black Bayou, Cameron	1929	1,106,400	1,312,200	4,733,947
Bosco, Acadia-St. Landry	1934	4,599,750	3,077,000	15,043,856
Caillou Island, Terrebonne	1930	5,099,950	6,385,000	16,544,454
Cameron Meadows, Cameron	1931	1,849,500	1,502,300	4,914,567
Gillis, Calcasieu	1934	5,630,100	5,154,350	13,037,758
Hackberry Old, Cameron	1928	182,350	1,379,450	3,826,317
Hackberry East, Cameron	1927	2,911,550	3,263,450	17,669,532
Iowa, Calcasieu-Jefferson Davis	1931	6,577,700	6,360,200	29,375,375
Jeanerette, St. Mary	1935	.....	2,257,000	3,231,000
Jennings, Acadia	1902	810,450	2,827,700	50,305,119
Lake Barre, Terrebonne	1929	2,914,850	1,578,900	16,533,585
Lake Washington, Plaquemines	1931	435,200	270,800	1,919,646
Leesville, La Fourche	1931	5,241,850	3,061,400	18,488,535
Lockport, Calcasieu	1924	477,600	520,150	14,117,069
New Iberia, Iberia	1917	2,278,550	6,192,300	9,139,069
Unclassified	1936	5,857,900	6,085,500	28,794,056
Port Barre, St. Landry	1929	869,950	627,050	6,725,073
Roanoke, Jefferson Davis	1934	2,285,100	1,909,400	6,055,062
Sulphur, Calcasieu	1926	1,745,250	1,431,850	11,335,937
Tepetate, Acadia	1935	.....	2,145,450	3,760,450
Valentine	1937	.....	743,550	743,550
Vinton, Calcasieu	1910	648,950	502,650	41,899,484
Total	1902	53,878,300	62,697,250	325,177,543

Michigan

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Unclassified	1925	11,852,000	16,189,100	82,769,405
Total	1925	11,852,000	16,189,100	82,769,405

Montana

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
Cat Creek, Petroleum	1920	262,250	223,300	14,300,100
Cut Bank, Glacier	1933	3,201,750	3,531,150	10,267,550
Kevin Sunburst, Toole	1922	1,514,700	1,675,300	33,266,100
Pondera, Pondera-Teton	1928	442,100	453,750	4,894,950
Others	1916	280,300	152,700	2,892,289
Total	1916	5,701,100	6,036,200	65,620,989

New Mexico

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Artesia, Eddy	1925	1,073,691	233,650	5,657,584
Cooper, Lea	1934	2,929,397	3,357,650	9,083,821
Eunice, Lea	1928	8,249,020	13,055,300	26,531,501
Hobbs, Lea	1929	9,000,669	7,299,500	81,184,955
Jal, Lea	1928	1,104,417	1,516,950	7,316,614
Lea, Lea	1929	432,871	42,200	6,139,304
Maljamar, Lea	1926	.....	1,771,500	4,540,255
Monument, Lea	1935	3,579,913	10,924,300	14,741,307
T. & P. State, Lea	1929	.....	3,700	320,052
Table Mesa, San Juan	1924	28,538	368,350	431,301
Unclassified	1924	370,631	484,000	6,434,550
Total	1924	26,769,147	39,057,100	162,381,244

Oklahoma

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Allen, Pontotoc	1928	2,993,550	2,160,250	41,212,900
Billings	1937	.....	1,597,500	1,597,500
Blackwell, Kay	1921	1,777,000	1,888,150	25,634,250
Bowlegs, Seminole	1927	4,276,600	4,190,150	83,703,350
Bristow-Slick, Creek	1922	3,068,150	2,767,200	129,675,950
Burbank, South, Osage-Kay	1934	5,253,850	5,545,350	16,775,250
Burbank, Osage-Kay	1920	2,826,850	2,869,250	150,094,300
Carr City, Seminole	1929	2,219,350	2,029,450	25,146,150
Chandler, Lincoln	1934	1,457,850	1,136,600	6,468,100
Crescent, Logan	1933	2,402,950	3,814,050	9,383,800
Cromwell, Seminole	1924	1,347,150	1,234,300	52,920,400
Cushing-Shamrock, Payne, Creek	1914	4,150,200	3,879,650	298,881,274
Duncan, Stephens	1921	1,479,150	1,432,350	44,076,050
Earlsboro, Seminole	1927	2,621,750	2,279,100	132,435,950
Earlsboro, East, Seminole	1930	3,725,400	2,734,000	40,525,750
Earlsboro, South, Seminole	1930	318,250	261,100	7,236,950
Edmond, Oklahoma	1935	4,395,100	6,528,950	12,312,550
Fish, Hughes-Seminole	1932	3,266,850	2,265,250	12,430,200
Fitts, Pontotoc	1934	19,752,500	31,233,100	57,994,850
Graham, Carter	1924	1,605,850	1,665,750	28,480,950
Gray, Pottawatomie	1934	577,850	458,300	2,475,450
Healdton, Carter	1914	3,404,200	3,617,400	161,541,127
Hewitt, Carter	1921	1,638,750	1,587,200	75,949,100
Jesse	....	.....	1,201,850	1,201,850
Keokuk, Seminole-Pottawatomie	1933	2,182,550	3,081,400	6,747,250
Konawa, Seminole	1930	654,900	597,250	14,139,450
Konawa, West, Pottawatomie	1933	.....		
Little River, Seminole	1927	4,792,550	3,926,100	108,419,450
Little River East, Seminole	1930	420,000	412,800	9,888,600
Lucien, Noble Logan	1933	4,515,850	5,171,900	17,045,000
Mission, Wagoner	1929	894,450	772,200	23,317,500
Moore, Cleveland	1936	314,650	3,949,800	4,264,450
Oklahoma City, Oklahoma	1929	51,458,550	54,527,500	400,385,850
Olympic	1936	2,391,750	4,573,650	6,965,400
Osage (outside Burbank), Osage	1903	8,338,750	7,701,750	349,791,796
Polo, Noble	1935	1,109,850	460,650	2,675,050
Sasakwa, Seminole	1929	921,750	748,800	8,639,950
Sasakwa Townsite, Seminole	1933	330,850	244,000	1,830,600
St. Louis-Pearson, Pattawatomie	1932	8,723,750	7,663,450	47,540,450
Sholem-Alechem, Carter-Stephens	1926	1,282,000	1,151,250	35,862,800
Searight, Seminole	1927	1,826,900	1,646,050	24,347,500
Seminole, Seminole	1926	3,836,350	3,474,700	155,649,800
Seminole East, Seminole	1929	1,185,950	1,082,550	6,738,200
Tatums, Carter	1932	1,254,000	1,913,600	11,109,700
Tonkawa-Garber-Thomas, Kay Garfield-Noble	1933	2,020,500	2,235,050	9,867,000
Wewoka, Seminole	1923	1,429,800	1,165,450	47,274,800
Yale-Jennings, Payne-Pawnee-Creek	1921	1,494,300	1,515,650	55,086,850
Unclassified	1891	24,700,250	27,608,500	1,498,865,270
Total	1891	200,639,400	224,000,300	4,264,606,767

Texas Summary

DISTRICT	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
East and East Central Texas	1896	190,673,850	210,383,000	1,547,111,005
North Texas	1902	22,558,950	26,107,100	561,266,512
*South Texas	1889	51,601,400	86,730,300	432,772,404
Texas Gulf Coast	1901	67,166,850	73,938,950	1,057,905,148
Texas Panhandle	1922	22,475,550	27,801,100	326,001,570
West Texas	1922	60,047,350	74,275,000	871,050,942
West Central Texas	1914	11,918,350	12,145,900	378,365,863
Unclassified	1903	.....	.....	578,158
Total	1889	426,442,300	511,381,350	5,175,051,602

* Details by three major areas appear among following tables.

Tables Continued on Page 148

10 YEARS
of RECORD-BREAKING SERVICE in the Drilling Industry

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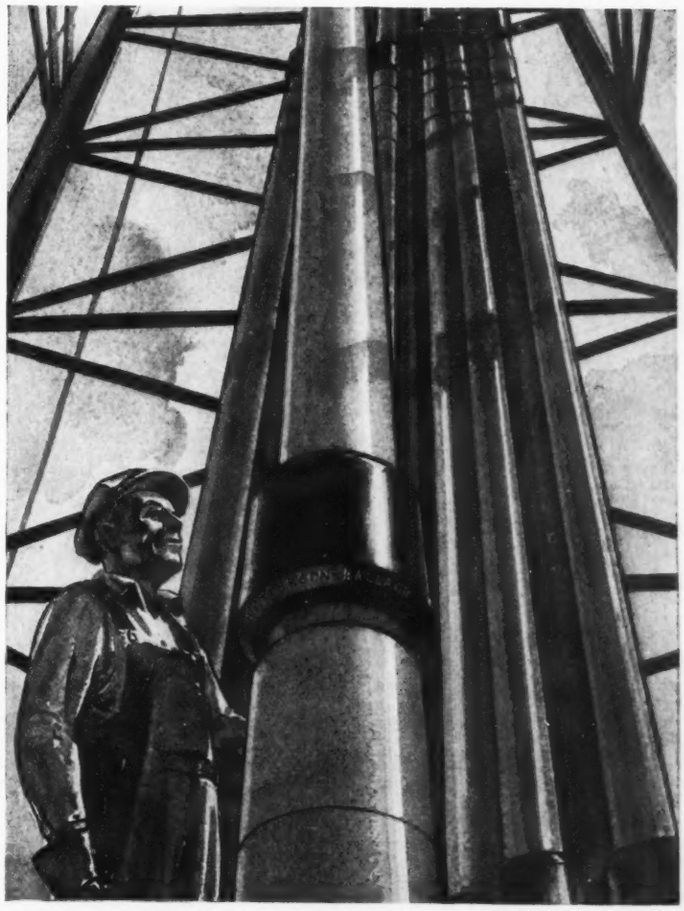

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PATTERSON-BALLAGH PROTECTORS

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United States Crude Oil Production, by Fields, 1936, 1937, and Cumulative—(Cont.)

East and Central Texas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Cayuga, Anderson-Freestone-Henderson	1934	2,133,200	3,207,650	7,263,714
East Texas Field, Five Counties	1930	169,060,000	168,730,250	1,131,239,470
Mexia, Limestone	1918	770,750	709,100	95,279,414
Powell, Navarro	1896	896,800	947,350	118,016,087
Rodessa, Cass	....	3,009,100	12,948,800	15,967,610
Sulphur Bluff, Hopkins	1937	.....	1,490,150	1,490,150
Talco, Titus-Franklin	1936	1,121,500	10,178,250	11,299,750
Van Field, Van Zandt	1929	12,485,350	11,146,100	110,702,720
Unclassified	....	1,197,150	1,025,350	55,852,090
Total	1896	190,673,850	210,383,000	1,547,111,005

North Texas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Archer Co., Holliday	1913	5,399,150	4,763,350	109,649,438
Baylor County	1925	1,262,800	665,600	3,666,130
Burkburnett, Wichita	1912	1,848,600	1,903,400	148,550,127
Electra, Wichita	1911	3,043,250	3,397,750	130,209,589
Jack County	1902	758,200	2,902,150	9,432,135
K. M. A.-Iowa Park, Wichita-Archer	1913	825,450	1,083,700	22,755,515
Montague County	1902	3,441,450	4,821,550	28,653,231
Wilbarger County	1924	3,040,050	3,198,300	62,025,298
Unclassified	1936	379,050	498,250	17,140,957
Young County, North Half	1926	2,560,950	2,873,050	28,220,456
Total	1902	22,558,950	26,107,100	560,303,176

South Texas Summary

DISTRICT	Year of First Prod.	Barrels in 1936	Barrels in 1937	All Years. Cumulative
Corpus Christi Area	1926	25,111,700	46,979,850	132,352,996
Laredo Area	1922	19,777,550	30,240,550	118,782,408
San Antonio Area	1889	6,712,150	9,509,900	181,637,000
Total South Texas	1889	51,601,400	86,730,300	432,772,404

South Texas, Corpus Christi Area

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
Dirks, Bee	1934	1,301,200	1,259,650	3,181,491
Greta, Refugio	1933	5,398,150	4,610,800	19,873,091
Pettus, Bee	1930	1,527,500	1,340,550	11,895,795
Pettus, North, Bee	1934	.....		
Placedo, Victoria	1935	1,120,200	3,041,450	4,307,540
Plymouth, San Patricio	1935	2,741,050	4,932,700	8,355,385
Refugio Unclassified	1936	1,809,900	2,187,150	3,997,050
Saxet, Nueces	1930	4,457,850	13,480,300	21,451,388
Saxet Heights, Nueces	1935	1,962,100	3,213,450	5,183,120
Tomoconnor, Refugio	1934	793,750	4,434,600	5,791,902
Unclassified	1926	4,000,000	8,479,200	48,316,234
Total	1926	25,111,700	46,979,850	132,352,996

South Texas, Laredo Area

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Government Wells	1928	4,261,350	5,733,750	32,614,066
Loma Novio, Duval	1934	3,852,000	6,480,400	11,115,044
Lopez, Duval	1935	414,100	3,108,650	3,585,487
Seven Sisters, Duval	1935	1,343,050	3,646,700	5,116,209
Unclassified	1922	9,907,050	11,271,050	66,351,602
Total	1922	19,777,550	30,240,550	118,782,408

South Texas, San Antonio Area

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Branyon, Caldwell	1928	.....	659,800	740,451
Darst Creek-Manford, Guadalupe	1929	3,063,350	2,665,750	43,059,265
Darst Creek-South, Guadalupe	1935	.....		
Luling, Caldwell	1922	2,084,750	2,250,600	66,521,370
Salt Flat, Caldwell	1928	1,494,200	1,623,400	36,470,716
Unclassified	1889	69,850	2,310,350	34,845,198
Total	1889	6,712,150	9,509,900	181,637,000

Texas Gulf Coast

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Anahuac, Chambers	1935	2,591,200	4,327,350	7,280,589
Barbers Hill, Chambers	1916	5,505,900	4,430,100	60,034,685
Batson, Hardin	1903	694,800	657,500	37,882,284
Conroe, Montgomery	1931	15,018,600	15,404,550	87,521,581
Dickinson, Galveston	1934	871,800	1,644,400	2,813,015
Goose Creek, Harris	1908	963,500	883,900	69,995,372
Hankamer, Liberty	1929	783,900	583,300	4,921,697
Hastings, Brazoria	1934	2,376,950	5,729,850	8,729,957
High Island, Galveston	1922	2,082,350	1,302,000	14,230,968
Hull, Liberty	1918	1,987,900	2,533,850	81,165,712
Humble, Harris	1904	1,261,600	1,252,950	120,032,224
Livingston, Polk	1930	1,099,850	989,700	4,306,330
Manvel, Brazoria	1931	3,004,650	3,412,250	10,745,558
Mykawa, Harris	1929	1,192,350	714,750	3,039,920
Pickette Ridge, Wharton	1935	586,050	728,850	1,363,686
Pierce Junction, Harris	1921	1,330,700	1,259,750	30,884,543
Raccoon Bend, Austin-Waller	1927	1,938,850	2,013,950	19,177,597
South Houston, Harris	1935	1,152,250	1,962,900	3,194,838
Spindle Top, Jefferson	1901	822,850	900,050	123,125,972
Sugarland, Fort Bend	1928	1,739,550	1,331,600	26,199,557
Thompson, Fort Bend	1931	3,583,050	4,152,800	25,990,353
Tomball, Harris, Montgomery	1933	2,593,650	3,039,250	8,754,927
West Columbia, Brazoria	1902	804,050	837,950	73,623,123
Unclassified	1936	13,180,500	13,845,400	232,890,660
Total	1901	67,166,850	73,938,950	1,057,905,148

Texas Panhandle

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Carson County	1923	1,951,650	2,563,350	4,515,000
Gray County	1925	10,880,900	13,243,650	24,124,550
Hutchinson County	1922	5,551,550	7,641,350	13,192,900
Moore County	1927	484,000	495,600	979,600
Wheeler County	1925	3,607,450	3,857,150	7,464,600
Unclassified	....	.....	.....	256,848,684
Total	1922	22,475,550	27,801,100	307,125,334

West Texas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years Cumulative
Andrews County	1936	858,500	1,256,300	2,114,800
Crane-Upton Counties	1936	8,509,300	11,052,750	19,562,050
Ector County	1936	4,995,450	8,776,900	13,772,350
Howard, Glasscock Counties	1926	6,811,600	5,825,800	79,624,156
Iatan, East Howard, Mitchell	1936	2,352,850	2,604,650	4,957,500
Reagan County, Unclassified	1936	2,961,800	2,729,500	5,691,300
Ward County, Unclassified	1928	8,637,200	12,368,000	38,013,496
Winkler County	1926	9,538,600	15,355,550	197,057,328
Yates, Pecos-Crockett	1926	12,381,600	10,633,500	232,588,403
Rest of Pecos County	1937	.....	1,856,250	1,856,250
Unclassified	1922	3,000,450	1,815,800	275,813,300
Total	1922	60,047,350	74,275,000	871,050,942

West Central Texas

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Brownwood, Brown	1902	641,850	635,750	28,674,138
Desdemona, Eastland Erath-Comanche	1918	1,114,850	1,083,650	30,574,289
Stephens, Fisher	1928	3,106,350	1,289,400	10,509,628
Jones, Stebbins-Swann-Nugent-Hawley	1926	.....	2,239,350	8,656,912
Shakleford, Moran and Other Fields	1902	2,477,400	2,653,400	33,282,512
Stephens, Breckenridge	1916	1,673,600	1,525,550	130,368,466
Young, South Half	1917	1,443,200	1,423,600	31,980,460
Unclassified	1914	1,461,100	1,295,200	104,319,458
Total	1914	11,918,350	12,145,900	378,365,963

Wyoming

FIELD AND COUNTY	Year Found	Barrels in 1936	Barrels in 1937	All Years, Cumulative
Big Muddy, Converse Natrona	1894	554,650	506,550	25,353,108
Elk Basin, Park	1894	164,200	37,000	10,104,488
Garland, Big Horn	1932	.....	717,150	1,641,150
Grass Creek, Hot Springs	1915	567,750	659,100	26,428,987
La Barge, Lincoln Sublette	1926	416,800	369,050	5,378,250
Lance Creek, Niobrara	1919	1,858,600	4,226,350	11,126,300
Lost Soldier Ferris, Sweetwater Carbon	1919	441,350	88,350	18,732,800
Medicine Bow	1937	.....	1,149,050	1,149,050
Oregon Basin, Park	1928	931,200	1,454,000	8,826,050
Rock Creek, Carbon	1919	623,700	743,250	17,358,250
Salt Creek, Natrona	1894	6,023,000	5,907,100	273,324,963
Unclassified	1894	2,656,850	3,629,400	34,860,029
Total	1894	14,238,100	19,486,350	434,283,425

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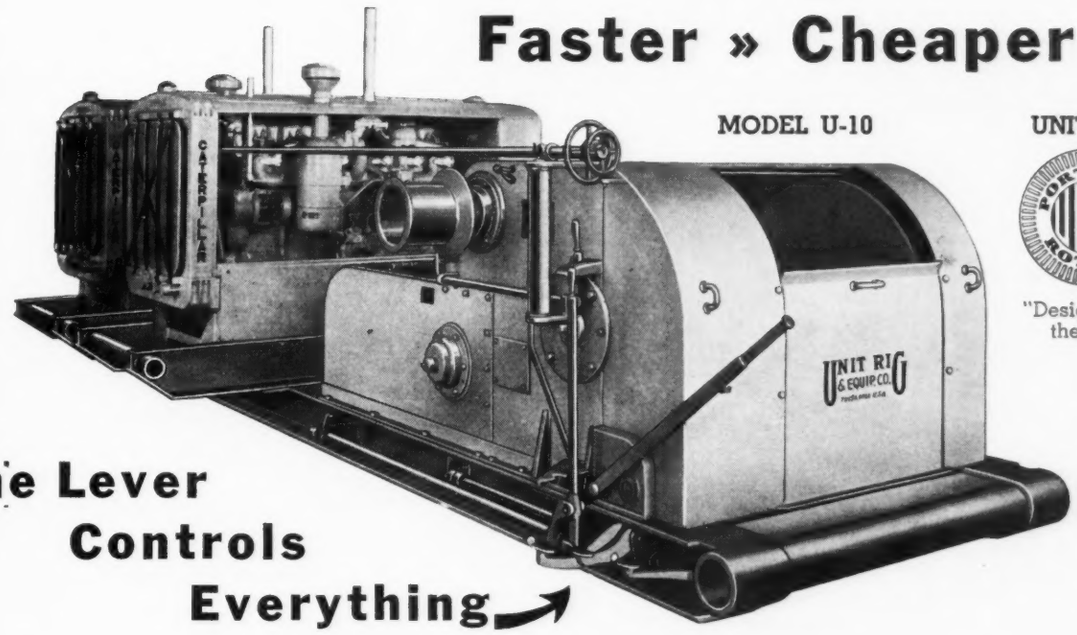

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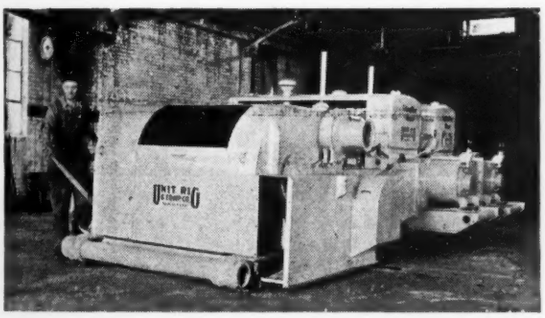

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"UNIT RIG"

Wells Drilled in the United States in 1937, by Counties and Fields

(Continued from page 52)

California—(Continued)

Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Montebello	10	7	....	3	1,357
Mountain View	46	38	....	8	17,773
Mount Poso	74	54	....	20	13,533
Newport	1	.....	....	1	.....
Playa del Rey	8	5	....	3	1,308
Potrero	1	1	....	....	50
Richfield	22	22	....	....	2,913
Rincon	7	7	....	....	3,896
Rio Bravo	1	1	....	....	2,550
Rio Vista	14	.....	14	....	.....
Rosecrans	6	5	....	1	3,215
Round Mt	67	55	....	12	19,402
San Miguelito	8	5	....	3	3,244
Santa Barbara	1	....	....	1	.....
Santa Fe Springs	6	3	....	3	596
Santa Maria	79	68	....	11	58,029
Seal Beach	2	2	....	....	165
Ten Section, Stevens	13	7	....	6	19,832
Torrance	19	18	....	1	2,235
Ventura Avenue	22	22	....	....	14,745
Ventura-Newhall	32	20	....	12	3,273
Whittier	1	.....	....	1	.....
Wilmington	323	323	....	....	206,546
Wildcats	105	.....	....	105	.....
Total, 1937.	1,470	1,146	16	308	641,873
Total, 1936.	1,123	781	12	330	360,110

Colorado

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Archuleta, Price	3	...	..	3	.....
Bent, Big Bend	1	...	..	1	.....
Boulder	1	...	..	1	.....
Eagle, Gypsum Creek	1	...	..	1	.....
Fremont	1	...	..	1	.....
Kiowa	4	...	..	4	.....
Las Animas	1	...	..	1	.....
Moffat:					
Iles	2	2	..	..	146
Powder Wash	2	1	1	..	2,400
Shell Creek	1	...	..	1	.....
Weld	2	...	..	2	.....
Total, 1937.	19	3	1	15	2,546
Total, 1936.	19	8	2	9	5,971

Eastern States Summary

State	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Illinois	408	258	5	145	78,262
Indiana	146	47	34	65	571
Kentucky	575	282	119	174	9,153
New York	26	1	15	10	26
Ohio	1,487	443	618	426	10,369
Pennsylvania	283	76	141	66	2,019
West Virginia	971	198	623	150	2,870
Total, 1937.	3,896	1,305	1,555	1,036	103,270
Total, 1936.	2,959	887	1,297	775	22,447

Illinois

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bond	5	1	1	3	300
Christian	1	...	..	1	.....
Clark	7	4	1	2	309
Clay	89	74	..	15	45,283
Clinton	31	15	..	16	1,197
Coles	1	...	..	1	.....
Crawford	18	12	..	6	178
Edgar	1	1	..	..	5
Edwards	1	...	..	1	.....
Effingham	3	...	..	3	.....
Fayette	7	...	..	7	.....
Hamilton	2	...	..	2	.....
Hancock	2	...	..	2	.....
Hardin	1	...	..	1	.....
Jasper	4	...	..	4	.....
Kane	1	...	..	1	.....
Lawrence	12	5	2	5	118
Marion	123	88	..	35	6,802
McDonough	14	11	..	3	578

(Continued on next column)

Illinois—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Mason	1	...	..	1	.....
Perry	1	...	..	1	.....
Pike	1	...	..	1	.....
Randolph	1	...	..	1	.....
Richland	41	32	..	9	21,164
Shelby	1	...	..	1	.....
St. Clair	2	...	1	1	.....
Wabash	18	9	..	9	339
Wayne	14	6	..	8	1,989
Washington	3	...	..	3	.....
White	1	...	..	1	.....
Will	1	...	..	1	.....
Total, 1937.	408	258	5	145	78,262
Total, 1936.	4	...	4	..	.....

Indiana

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Daviess	17	...	7	10	....
Decatur	2	...	2	..	....
Delaware	1	...	1	..	....
Dubois	2	...	..	2	....
Gibson	13	2	4	7	9
Greene	1	...	..	1	....
Hamilton	1	...	1	..	....
Harrison	2	...	1	1	....
Huntington	1	...	..	1	....
Jay	1	1	..	..	20
Knox	12	...	8	4	....
Marion	1	...	..	1	....
Martin	2	...	..	2	....
Perry	17	7	2	8	43
Pike	22	10	5	7	156
Posey	1	...	..	1	....
Randolph	1	1	..	..	4
Rush	3	...	1	2	....
Spencer	14	7	1	6	53
Sullivan	8	4	1	3	56
Vanderburg	11	8	..	3	126
Vigo	11	7	..	4	104
Warrick	1	...	..	1	....
Wells	1	...	..	1	....
Total, 1937.	146	47	34	65	571
Total, 1936.	165	31	57	77	868

Kentucky

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Breckenridge	14	1	6	7	43
Butler	4	2	..	2	30
Carter	1	...	1	..	....
Crittenden	1	...	..	1	....
Daviess	40	14	10	16	262
Estill	14	14	..	..	79
Floyd	26	3	21	2	55
Grayson	1	...	1	..	....
Hancock	108	48	20	40	1,636
Henderson	13	12	1	..	387
Johnson	2	...	1	1	....
Knott	20	...	20	..	....
Lawrence	5	4	1	..	17
Lee	59	53	..	6	2,285
Magoffin	9	7	..	2	29
Marion	4	...	4	..	....
Martin	13	4	7	2	47
McLean	56	33	1	22	2,134
Metcalfe	1	...	..	1	....
Muhlenberg	1	...	..	1	....
Ohio	161	71	23	67	1,974
Pike	3	1	1	1	51
Powell	14	11	..	3	72
Union	1	1	..	..	20
Webster	2	1	1	..	20
Wolfe	2	2	..	..	12
Total, 1937.	575	282	119	174	9,153
Total, 1936.	273	179	8	86	10,565

New York

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegany	4	...	2	2	..
Cattaraugus	2	...	..	2	..
Schuyler	2	...	..	2	..
Steuben	18	1	13	4	26
Total, 1937.	26	1	15	10	26

Ohio

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allen	1	1	....	....	5
Ashland	28	5	12	11	46
Ashtabula	3	...	1	2	.....
Athens	113	23	54	36	102
Auglaise	1	.....	....	1	.....
Belmont	40	8	20	12	54
Carroll	4	3	....	1	9
Columbiana	2	.....	....	2	.....
Coshocton	28	17	2	9	926
Cuyahoga	12	1	8	3	24
Delaware	1	.....	....	1	.....
Fairfield	12	.....	8	4	.....
Fulton	1	.....	....	1	.....
Gallia	2	.....	1	1	.....
Greene	1	.....	1	....	.....
Guernsey	78	4	45	29	14
Hancock	6	4	....	2	42
Hardin	4	3	1	....	78
Harrison	1	.....	1	....	.....
Henry	5	4	....	1	66
Hocking	30	15	8	7	442
Holmes	21	1	12	8	37
Huron	29	1	27	1	3
Jackson	1	1	....	....	135
Jefferson	10	6	2	2	18
Knox	64	27	20	17	1,649
Lawrence	4	1	3	....	19
Licking	129	83	27	19	1,851
Lorain	40	.....	27	13	.....
Mahoning	1	.....	....	1	.....
Medina	56	23	12	21	125
Meigs	113	7	71	35	11
Monroe	67	26	26	15	111
Morgan	57	18	27	12	36
Muskingum	46	22	10	14	1,120
Noble	55	10	25	20	17
Ottawa	1	.....	1	....	.....
Perry	84	32	33	19	1,060
Portage	2	.....	1	1	.....
Putnam	13	13	....	....	774
Richland	2	.....	....	2	.....
Sandusky	4	1	1	2	5
Scioto	4	.....	2	2	.....
Seneca	23	7	15	1	1,189
Shelby	2	1	....	1	5
Stark	46	1	41	4	4
Summit	16	1	10	5	3
Tuscarawas	24	.....	13	11	.....
Vinton	20	11	5	4	38
Washington	154	53	39	62	234
Wayne	20	5	6	9	68
Wood	1	.....	....	1	.....
Wyandot	5	4	....	1	49
Total, 1937.	1,487	443	618	426	10,369
Total, 1936.	1,918	538	862	518	9,993

Pennsylvania

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegheny	10	3	4	3	5
Beaver	7	3	1	3	6
Butler	9	6	1	2	57
Crawford	1	...	..	1	.....
Fayetta	1	...	1	..	.....
Greene	116	29	63	24	1,127
Indiana	1	...	1	..	.....
N. Y.-Penna	2	...	2	..	.....
Potter	10	...	8	2	.....
Tiogo-Wayne	5	...	4	1	.....
Warren	4	...	..	4	.....
Washington	116	35	56	25	924
Westmoreland	1	...	..	1	.....
Total, 1937	283	76	141	66	2,019

West Virginia

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Boone	53	4	47	2	1,597
Braxton	39	...	32	7	.....
Brooks	1	...	..	1	.....
Cabell	44	...	43	1	.....
Calhoun	72	15	47	10	145
Campbell	1	...	1	..	.....
Clay	15	11	3	1	114
Dodridge	4	1	2	1	1
Fayette	2	1	1	..	.....
Gilmer	97	7	79	11	36
Hancock	7	6	..	1	16
Harrison	7	...	7	..	.....
Jackson	8	4	...	4	13
Kanawha	129	6	117	6	49

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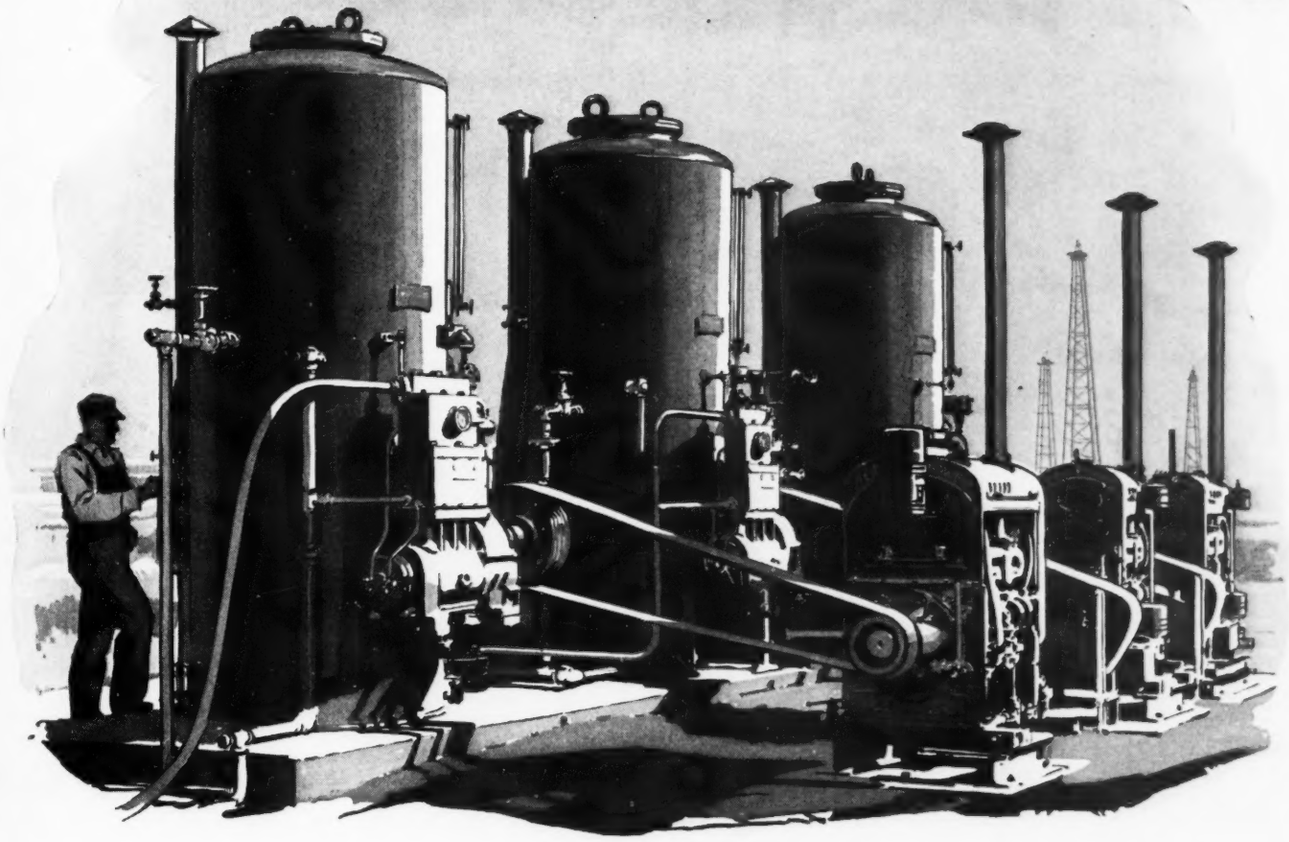
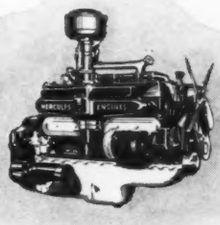
DEPENDABLE POWER FOR CONTINUOUS PUMPING



Operating in 24-hour service on property of the British American Oil Producing Company at Oklahoma City, 15 Kobe pumping units powered by Hercules WXC3 power units are producing 250 to 400 barrels each, per day. Dependability and economy have been built into every Hercules Engine for over twenty-two years. The selection of Hercules power year after year by leading manufacturers of automotive, agricultural, industrial, marine and oil field equipment has given Hercules its present position as the world's largest manufacturer of multi-cylinder, internal-combustion engines exclusively.



HERCULES ENGINES

HERCULES MOTORS CORPORATION, Canton, Ohio
Oil Field Sales and Service Branch, Kilgore, Texas

AMERICA'S FOREMOST ENGINE MANUFACTURER
Power Plants from 4 to 200 Horsepower

Wells Drilled in the United States in 193 7, by Counties and Fields—(Continued)

West Virginia—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Lewis	9	...	7	2	.....
Lincoln	52	9	41	2	156
Logan	1	...	1	..	.....
Marion	23	3	18	2	9
Marshall	20	5	14	1	23
Mason	3	1	1	1	1
Mingo	5	...	4	1	.....
Monongalia	15	2	12	1	15
Nichols	1	...	1	..	.....
Pleasants	46	21	13	12	36
Putnam	7	...	5	2	.....
Ritchie	128	41	54	33	232
Roane	48	19	16	13	180
Taylor	1	...	1	..	.....
Tyler	25	10	6	9	42
Upshur	6	...	6	..	.....
Washington	1	...	1	..	.....
Wayne	29	1	27	1	5
Wetzel	32	11	14	7	47
Wirt	25	9	2	14	97
Wood	15	11	..	4	56
Total, 1937	971	198	623	150	2,870
Total, 1936	599	139	366	94	1,021

Kansas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Barber	22	8	5	9	8,219
Barton	294	238	8	48	353,815
Butler	79	51	....	28	6,850
Chase	5	2	....	3	154
Chautauqua	83	34	17	32	2,207
Clark	1	1	....	....	186
Coffey	18	11	....	7	353
Cowley	82	44	4	34	37,125
Decatur	1	.....	....	1	.....
Edwards	4	1	....	3	1,160
Elk	32	20	....	12	1,140
Ellis	232	194	....	38	382,170
Ellsworth	53	42	....	11	68,868
Finney	1	.....	....	1	.....
Ford	1	.....	....	1	.....
Franklin	2	2	....	....	17
Grant	30	.....	30	....	.....
Greenwood	85	47	1	37	2,640
Hamilton	1	.....	....	1	.....
Harper	2	.....	....	2	.....
Harvey	57	42	....	15	35,501
Haskell	2	.....	1	1	.....
Kearney	3	.....	2	1	.....
Kingman	4	1	1	2	150
Kiowa	1	.....	....	1	.....
Lane	1	.....	....	1	.....
Logan	2	.....	....	2	.....
Lyon	4	1	....	3	25
Marion	10	4	1	5	529
McPherson	95	73	4	18	43,774
Mitchell	1	.....	....	1	.....
Morton	2	.....	2	....	.....
Ness	3	3	....	....	2,507
Osborne	2	.....	....	2	.....
Pawnee	4	1	....	3	410
Pratt	6	2	....	4	597
Reno	157	130	4	23	159,781
Rice—(Field)	432	357	1	74	519,084
Rooks—(Field)	20	11	....	9	11,108
Rush	39	21	10	8	17,177
Russell	452	405	....	47	670,294
Saline	2	.....	....	2	.....
Scott	5	3	....	2	3,209
Sedgwick	33	16	1	16	14,132
Seward	3	1	2	....	40
Sheridan	1	.....	....	1	.....
Stafford	80	49	....	31	64,220
Stevens	31	1	29	1	1,069
Sumner	66	42	3	21	26,262
Trego	17	4	....	13	2,000
Wallace	1	.....	....	1	.....
Woodson	93	53	2	38	2,840
Total, 1937	2,657	1,915	128	614	2,439,613
Total, 1936	1,722	1,229	62	431	1,283,211

Louisiana Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
North	510	326	91	93	156,429
South	477	296	14	167	151,460
Total, 1937	987	622	105	260	307,889
Total, 1936	994	646	122	226	1,259,273

North Louisiana

Parish and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bienville	4	...	2	2	.....
Bossier:					
Antrim	1	...	..	1	.....
Bellevue	4	4	..	..	43
Sligo	22	7	10	5	1,518
Others	1	...	..	1	.....
Caddo:					
Dixie	1	1	..	..	200
Hoss ton	1	1	..	..	15
Pine Island	49	40	..	9	3,771
Robson	2	...	1	1	.....
Rodessa	94	84	5	5	38,453
Caldwell	2	...	..	2	.....
Claiborne:					
Athens	1	...	..	1	.....
Haynesville	3	3	..	..	1,774
Lisbon	116	114	..	2	84,765
Sugar Creek	7	1	5	1	205
Others	1	...	..	1	.....
De Soto:					
Kickapoo	1	...	..	1	.....
Naborton	2	1	1	..	7
Others	12	1	1	10	50
Franklin	2	...	..	2	.....
Grant:					
Urania	4	3	..	1	83
Others	4	1	..	3	100
Jackson	1	...	..	1	.....
La Salle:					
Urania	8	6	..	2	232
Others	7	3	..	4	270
Lincoln	26	19	1	6	16,284
Morehouse, Monroe	15	...	14	1	.....
Natchitoches	2	...	..	2	.....
Ouachita, Monroe	19	...	18	1	.....
Rapides	1	...	..	1	.....
Red River:					
Bull Bayou	1	1	..	..	30
Naborton	4	3	..	1	72
Others	5	1	..	4	10
Sabine:					
Ayers	3	3	..	..	185
Converse	14	8	..	6	323
Zwolle	3	1	..	2	360
Others	5	2	..	3	70
Tensas	2	...	..	2	.....
Union:					
Monroe	32	...	31	1	.....
Others	1	...	1	..	.....
Webster:					
Cotton Valley	18	17	..	1	7,603
McIntyre	1	1	..	..	6
Sibley	1	...	1	..	.....
Wildcats	2	...	..	2	.....
West Carroll	1	...	..	1	.....
Winn	4	...	..	4	.....
Total, 1937	510	326	91	93	156,429
Total, 1936	556	354	112	90	1,097,261

Louisiana Gulf Coast

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Field:					
Abbeville	2	2	..	..	792
Anse La Butte	7	3	..	4	341
Bay St. Elaine	2	1	..	1	1,004
Bayou Blue	8	4	1	3	1,177
Bayou Mallet	4	...	1	3	.....
Big Lake	2	2	..	..	800
Black Bayou	4	2	..	2	1,288
Bosco	2	1	..	1	200
Caillou Island	12	11	..	1	8,276
Calcasieu	5	...	..	5	.....
Cameron Meadows	7	3	1	3	1,238
Canton	3	...	2	1	.....
Charenton	9	4	1	4	1,726
Choctaw	5	3	..	2	1,186
Darrow	9	4	..	5	2,996
Dog Lake	3	3	..	..	4,533
East Hackberry	11	7	..	4	2,952
Edgerly	1	...	..	1	.....
English Bayou	8	8	..	..	3,019
Fausse Point	1	...	..	1	.....
Garden Is. Bay	4	4	..	..	1,564
Gibson	5	4	..	1	3,549
Gillis	15	7	2	6	4,815
Gueydan	2	2	..	..	272
Iowa	11	11	..	..	4,099
Jeanerette	17	12	..	5	7,417
Jefferson Davis	4	1	1	2	128
Jennings	51	45	1	5	18,171
Lafitte	10	10	..	..	13,969
Lake Barre	2	2	..	..	2,317
Lake Hermitage	1	...	..	1	.....
Lake Pelto	5	5	..	..	3,291

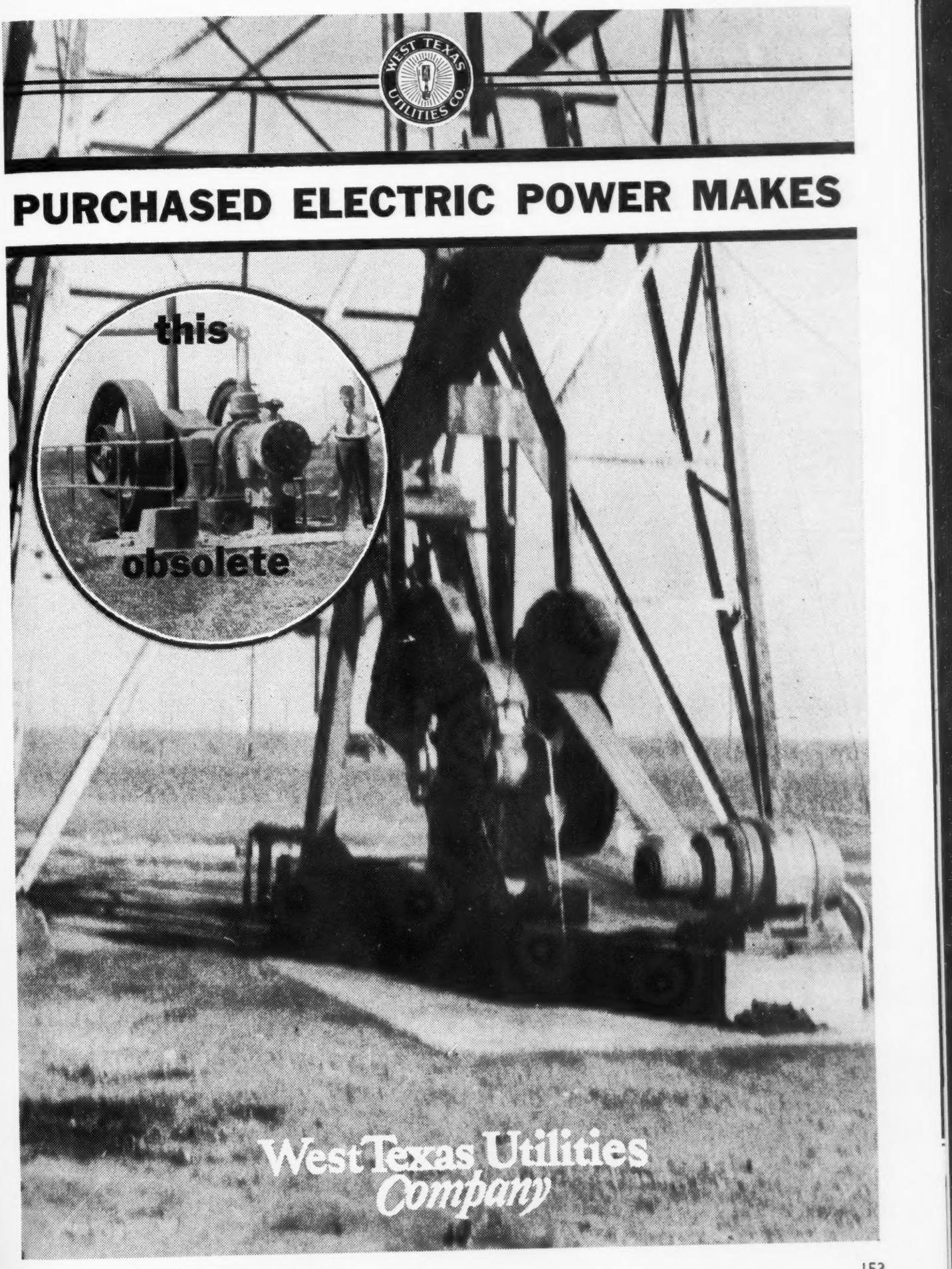
(Continued on next column)

Louisiana Gulf Coast (Continued)

Parish or Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Field:					
Leesville	17	13	1	3	7,107
Lirette	1	1	..	..	36
Lockport	1	1	..	..	650
New Iberia	25	18	..	7	11,349
North Crowley	2	1	..	1	792
Pine Prairie	2	...	..	2	.....
Port Barre	2	...	..	2	.....
Potash	16	...	..	16	.....
Roanoke	10	10	..	..	4,111
South Jennings	1	...	..	1	.....
Sorrento	3	...	..	3	.....
Starks	4	2	..	2	656
St. Martinsville	1	...	..	1	.....
Sulphur	19	16	2	1	7,074
Tepetate	19	16	..	3	3,410
Valentine	15	13	..	2	6,928
Venice	1	1	..	..	360
Vinton	5	3	1	1	360
West Hackberry	32	25	..	7	9,780
White Castle	2	1	..	1	642
Parish (Wildcats):					
Acadia	3	1	..	2	679
Avoyelles	1	...	..	1	.....
Cameron	7	...	..	7	.....
E. Baton Rouge	6	...	..	6	.....
E. Feliciana	4	...	..	4	.....
Evangeline	4	1	..	3	177
Fausse Pointe	1	1	..	..	16
Iberia	2	...	..	2	.....
Jefferson Davis	1	...	..	1	.....
La Fourche	5	2	..	3	1,370
Livingston	1	...	..	1	.....
Plaquemines	9	3	..	6	1,086
St. Bernard	1	...	..	1	.....
St. Charles	1	1	..	..	569
St. Landry	2	...	..	2	.....
St. Mary	1	1	..	..	1,150
St. Martin	6	...	..	6	.....
St. Martinsville	4	1	..	3	406
Terrebonne	3	2	..	1	1,607
Vermilion	3	1	..	2	25
Vernon	1	...	..	1	.....
West Feliciana	1	...	..	1	.....
Total, 1937	477	296	14	167	151,460
Total, 1936	438	292	10	136	162,012

Michigan

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Allegan	76	58	..	18	18,073
Alcona	2	...	..	2	.....
Alpena	1	...	..	1	.....
Arenac	75	51	7	17	13,197
Bay	3	...	..	3	.....
Cass	1	...	..	1	.....
Cheboygan (Field)	1	...	..	1	.....
Clare	10	...	2	8	.....
Clinton	3	...	..	3	.....
Emmet	1	...	..	1	.....
Gladwin	370	329	..	41	189,905
Gratiot	33	...	16	17	.....
Hillsdale	3	...	..	3	.....
Huron	3	...	..	3	.....
Ingham	2	...	..	2	.....
Ionia	1	...	..	1	.....
Iosco	1	...	..	1	.....
Isabella	98	65	2	31	18,579
Kent	2	...	..	2	.....
Lake	1	...	..	1	.....
La Peer	1	...	..	1	.....
Lenawee	3	...	..	3	.....
Livingston	2	...	..	2	.....
Macomb	2	...	..	2	.....
Manistee	1	...	..	1	.....
Mecosta	10	...	5	5	.....
Midland	48	36	..	12	4,313
Missaukee	2	...	..	2	.....
Monroe	4	1	..	3	100
Montcalm	50	14	13	23	1,589
Montclair	1	...	1	..	.....
Muskegon	21	...	16	5	.....
Newaygo	2	...	..	2	.....
Oceana	1	...	..	1	.....
Ogemaw	62	48	..	14	3,495
Osceola	2	...	..	2	.....
Otsego (Field)	1	...	..	1	.....
Ottawa	2	...	..	2	.....
Roscommon	3	...	..	3	.....
Saginaw	10	2	..	8	28
Shiawassee	1	...	..	1	.....
St. Clair	2	...	..	2	.....
Tuscola	4	1	..	3	15
Washtenaw	2	...	1	1	.....
Wayne	1	...	..	1	.....
Total, 1937	925	605	63	257	249,294
Total, 1936	756	322	200	234	53,507


WEST TEXAS UTILITIES CO.
PURCHASED ELECTRIC POWER MAKES
this
obsolete
West Texas Utilities
Company

Wells Drilled in the United States in 1937, by Counties and Fields—(Continued)

Montana

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Big Horn, Hardin	6	...	6	..	.....
Carbon	3	...	1	2	.....
Fergus	3	...	..	3	.....
Glacier, Cut Bank	78	58	12	8	7,385
Roosevelt	1	...	..	1	.....
Toole:					
Kevin-Sunburst	104	84	6	14	4,534
Others	1	...	..	1	.....
Yellowstone	4	3	..	1	270
Total, 1937.	200	145	25	30	12,189
Total, 1936.	193	138	20	35	13,312

Nebraska

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Total, 1937.	...	...	..	..	.....
Total, 1936.	1	...	..	1	.....

New Mexico

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Eddy Co.	39	30	1	8	6,855
Cooper	8	4	2	2	10,000
Eaves	4	1	3	..	898
East Jal-Langlie	34	30	4	..	14,911
East Jal-Mattix	48	40	8	..	16,723
Eunice	159	154	4	1	163,995
Hardy (N. Eunice)	28	28	..	..	3,064
Hobbs	7	7	..	..	56,330
Lea-Lynch	3	2	..	1	5,500
Lynn	3	3	..	..	4,700
Maljamar	4	4	..	..	292
Monument	213	211	1	1	478,812
Penrose (S. Eunice)	68	68	..	..	19,281
Rhoades	2	...	2	..	.....
Skelly	19	16	3	..	2,167
South Jal	4	3	1	..	2,010
Vacuum	3	3	..	..	2,288
Lea	24	3	..	21	3,410
Otero Co.	1	...	..	1	.....
Roosevelt Co.	3	...	..	3	.....
Total, 1937.	674	607	29	38	791,236
Total, 1936.	564	523	15	26	879,709

Oklahoma

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Alfalfa	1	.....	.....	1	.....
Atoka	5	.....	.....	5	.....
Beckham	8	.....	3	5	.....
Blaine	1	.....	.....	1	.....
Caddo	20	10	6	4	1,854
Carter	168	132	3	33	4,353
Choctaw	1	.....	.....	1	.....
Cleveland	37	32	.....	5	430,748
Coal	16	7	1	8	655
Comanche	18	7	1	10	315
Cotton	18	5	1	12	65
Creek	199	126	18	55	5,101
Garfield	4	1	.....	3	330
Garvin	67	50	2	15	5,138
Grady	11	6	1	4	366
Grant	2	1	.....	1	756
Greer	3	.....	.....	3	.....
Harmon	2	.....	.....	2	.....
Hughes	80	39	14	27	4,096
Jackson	29	14	4	11	392
Jefferson	70	58	.....	12	3,879
Kay	20	11	2	7	2,540
Kiowa	21	3	2	16	18
Latimer	3	.....	2	1	.....
Le Fore	4	.....	1	3	.....
Lincoln	65	56	1	8	25,631
Logan	59	41	2	16	152,149
Love	5	1	.....	4	35

(Continued on next column)

Oklahoma—(Continued)

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Marshall	16	5	.....	11	35
McCurtain	1	.....	.....	1	.....
McIntosh	1	.....	.....	1	.....
Murray	3	.....	.....	3	.....
Muskogee	51	17	7	27	498
Noble	74	65	.....	9	167,705
Okfuskee	205	162	10	33	29,497
Oklahoma	108	104	.....	4	234,734
Okmulgee	115	54	12	49	3,716
Osage	234	161	10	63	18,113
Pawnee	28	9	3	16	59
Payne	19	6	4	9	705
Pittsburg	23	18	1	4	25,037
Pontotoc	537	473	8	56	722,806
Pottawatomie	98	71	2	25	19,199
Pushmataha	1	.....	.....	1	.....
Seminole	298	226	4	68	72,897
Stephens	94	58	6	30	8,109
Tillman	12	6	.....	6	1,071
Tulsa	65	29	9	27	2,705
Wagoner	5	2	.....	3	7
Washita	1	.....	.....	1	.....
Total, 1937.	2,926	2,066	140	720	1,945,214
Total, 1936.	2,857	2,004	134	719	4,091,162

Southeastern States Summary

State	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Alabama	2	...	..	2	.....
Florida	1	...	..	1	.....
Mississippi	14	...	..	14	.....
Total, 1937.	17	...	..	17	.....
Total, 1936.	12	...	1	11	.....

Alabama

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Choctaw	1	...	..	1	.....
Washington	1	...	..	1	.....
Total, 1937.	2	...	..	2	.....
Total, 1936.	2	...	..	2	.....

Florida

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Levy	1	...	..	1	.....
Total, 1937.	1	...	..	1	.....
Total, 1936.	2	...	..	2	.....

Mississippi

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Bolivar	1	...	..	1	.....
Franklin	1	...	..	1	.....
George	1	...	..	1	.....
Hinds, Flora	1	...	..	1	.....
Hinds, Jackson	2	...	..	2	.....
La Fayette	1	...	..	1	.....
Lamar	2	...	..	2	.....
Lauderdale	1	...	..	1	.....
Madison	1	...	..	1	.....
Perry	1	...	..	1	.....
Washington	1	...	..	1	.....
Wilkinson	1	...	..	1	.....
Total, 1937.	14	...	..	14	.....
Total, 1936.	8	...	1	7	.....

Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
E. Texas Field	2,466	2,380	2	84	11,808,553
E. Tex., outside E. Tex. Field	1,007	860	37	110	531,759
North	2,254	1,236	27	991	252,994
South	3,594	2,533	143	918	1,014,479
Gulf Coast	1,537	1,174	59	304	516,055
Panhandle	838	655	153	30	322,681
West	2,898	2,525	10	363	3,088,697
West Central	403	166	25	212	12,586
Total, 1937.	14,997	11,529	456	3,012	17,547,804
Total, 1936.	12,527	9,459	360	2,708	14,256,756

East Texas Field

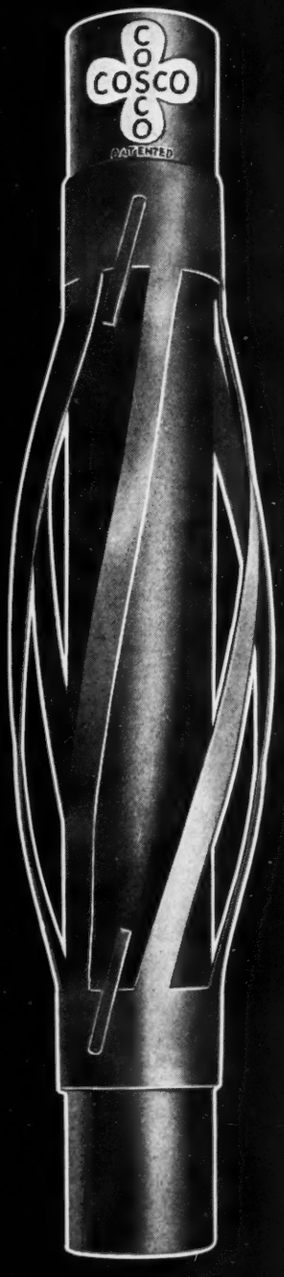
Area	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Joiner	713	683	2	28	2,930,084
Kilgore	812	792	....	20	3,536,546
Longview	941	905	....	36	5,341,923
Total, 1937.	2,466	2,380	2	84	11,808,553
Total, 1936.	2,627	2,509	1	117	9,627,807

Eastern Texas (Outside East Texas Field)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Anderson:					
Cayuga	25	22	3	..	36,400
Long Lake	43	27	14	2	40,498
Wildcats	3	...	..	3	.....
Angelina:					
Huntington	1	1	..	..	5
Wildcats	2	...	..	2	.....
Bowie	4	...	..	4	.....
Cass:					
Douglassville	1	...	..	1	.....
Rodessa	191	180	7	4	85,536
Cherokee:					
Rusk Pool	1	...	..	1	.....
Wildcats	6	...	..	6	.....
Collin	1	...	..	1	.....
Delta	2	...	..	2	.....
Ellis	1	...	..	1	.....
Falls	2	...	..	2	.....
Fannin	3	...	..	3	.....
Franklin:					
Talco	115	113	1	1	38,056
Others	1	...	..	1	.....
Freestone:					
Cayuga	4	4	..	..	8,300
Wildcats	8	...	..	8	.....
Harrison:					
Waskom	5	5	..	..	58
Wildcats	2	1	..	1	12
Henderson:					
Cayuga	45	42	1	2	114,134
Wildcats	5	2	1	2	138
Hill	2	1	..	1	5
Hopkins:					
Sulphur Bluff	63	62	..	1	52,530
Wildcats	8	1	..	7	50
Houston	8	2	2	4	106
Hunt	3	...	1	2	.....
Lamar	3	...	..	3	.....
Leon	1	...	..	1	.....
Limestone	1	...	..	1	.....
Marion:					
Pine Island	5	2	..	3	38
Rodessa	38	34	4	..	18,261
Morris	2	...	..	2	.....
Navarro	2	1	..	1	5
Panola:					
Bethany	1	...	..	1	.....
Others	4	2	..	2	27
Rains	1	...	..	1	.....
Red River	5	...	..	5	.....
Robertson	1	...	..	1	.....
Rusk	5	...	..	5	.....
Sabine	1	...	..	1	.....
Shelby	3	1	2	..	42
Titus:					
Talco	350	342	1	7	109,288
Wildcats	3	...	..	3	.....
Upshur	2	...	..	2	.....
Van Zandt:					
Van	21	15	..	6	28,270
Wildcats	1	...	..	1	.....
Wood	2	...	..	2	.....
Total, 1937.	1,007	860	37	110	531,759
Total, 1936.	566	435	17	114	695,114

W-K-M "COSCO" WELL BORE CLEANER *and* CASING CENTRALIZER

(Licensed under basic patents. Other patents pending)



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Positive assurance of a perfect and complete cementing job.

Casing is held exactly in the center of hole and allows perfect distribution of cement entirely around circumference.

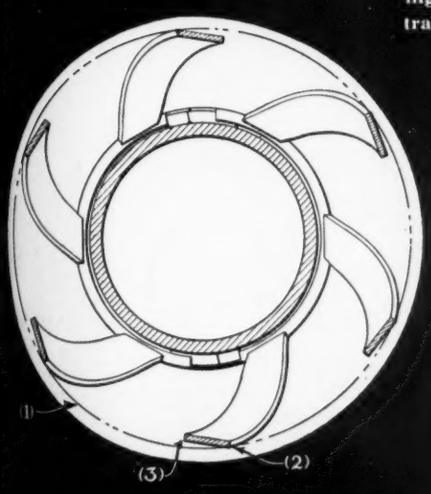
Preformed spiral spring steel blades have an undertwist throughout their curve, forming a cutting or scraping edge on their upper sides, and a sliding or smoothing edge on the under sides.

When pulled upward, the springs scrape the lining of mud from the wall, allowing the cement to bond directly with the formation . . . on the downward movement, springs trowel and smooth out the well bore. This enables you to preserve the well bore lining at any point.

The spiral springs contact the entire circumference of the bore and do not cause irregular strictured surfaces, furrows, or keyseats plowed by vertical springs of the conventional type.

As fluid passes the cleaner, the combined action of the spirals and the undertwist of the springs cause a whirling effect which eliminates channeling of cement and assists very materially in cleaning the well bore.

This tool is pulled in and pulled out by means of lugs and slotted collars. Flexibility of blades allows it to pass obstructions or through tight hole.



1. Well Bore.
2. Cleaning or scraping edge when tool is pulled upward.
3. Trowelling or smoothing edge on downward travel.

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Wells Drilled in the United States in 1937, by Counties and Fields—(Continued)

North Texas

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Archer	362	143	2	217	6,523
Baylor	9	2	..	7	40
Clay	79	31	..	48	5,132
Collin	1	....	..	1	.....
Cooke	201	131	1	69	7,573
Denton	24	3	3	18	120
Fannin	1	....	..	1	.....
Foard	4	3	..	1	4,023
Grayson	9	2	..	7	64
Hardeman	1	....	..	1	.....
Haskell	3	....	..	3	.....
Jack	442	333	9	100	92,334
King	1	....	..	1	.....
Knox	1	....	..	1	.....
Montague	133	96	4	33	7,138
Throckmorton	24	....	3	21	.....
Wichita	431	256	1	174	56,245
Wilbarger	88	58	1	29	33,569
Wise	4	....	..	4	.....
Young	436	178	3	255	40,233
Total, 1937	2,254	1,236	27	991	25,994
Total, 1936	2,179	1,204	6	969	163,468

South Texas Summary

District	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Corpus Christi	1,456	1,133	48	275	656,731
Laredo	1,522	1,021	90	411	269,540
San Antonio	616	379	5	232	88,208
Total, 1937	3,594	2,533	143	918	1,014,479
Total, 1936	3,321	2,471	99	751	1,212,181

South Texas: San Antonio Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Atascosa	7	1	..	6	10
Bastrop	23	7	..	16	1,129
Bexar	49	27	1	21	157
Blanco	2	....	..	2	.....
Burleson	4	....	..	4	.....
Caldwell	324	263	1	60	65,384
Comal	2	....	..	2	.....
Dimmit	9	4	..	5	783
Edwards	3	....	..	3	.....
Fayette	1	....	..	1	.....
Frio	5	4	..	1	2,185
Gonzales	3	....	..	3	.....
Guadalupe	102	56	2	44	12,696
Hayes	6	....	..	6	.....
Kendall	1	....	..	1	.....
Kerr	1	....	..	1	.....
Lee	3	....	..	3	.....
Maverick	5	....	..	5	.....
Medina	31	11	1	19	65
Milam	6	....	..	6	.....
Real	1	....	..	1	.....
Travis	2	1	..	1	110
Williamson	16	4	..	12	689
Wilson	9	....	..	9	.....
Zavalla	1	1	..	..	5,000
Total, 1937	616	379	5	232	88,208

South Texas: Laredo Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Duval	728	545	44	139	198,998
Jim Hogg	22	.....	5	17	.....
La Salle	1	.....	.....	1	.....
McMullen	118	56	10	52	9,026
Starr	78	19	8	51	6,262
Webb	322	223	15	84	48,947
Zapata	253	178	8	67	7,307
Total, 1937	1,522	1,021	90	411	269,540

South Texas: Corpus Christi Area

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Aransas	92	84	2	6	36,990
Bee	39	19	2	18	2,991
Brooks	28	15	2	11	3,905
Calhoun	71	63	1	7	38,288
Cameron	2	....	..	2	.....
Colorado	2	1	....	1	150
DeWitt	7	1	....	6	210
Goliad	18	8	1	9	2,365
Hidalgo	36	24	1	11	8,440
Jackson	13	7	1	5	545
Jim Wells	71	38	5	28	10,260
Karnes	38	32	1	5	13,899
Kleberg	7	1	....	6	350
Lavaca	1	....	..	1	.....
Live Oak	71	26	2	43	4,381
Nueces	546	467	16	63	222,313
Refugio	181	162	6	13	219,070
San Patricio	118	90	....	28	44,874
Victoria	113	95	8	10	47,700
Willacy	2	....	....	2	.....
Total, 1937	1,456	1,133	48	275	656,731

Texas Gulf Coast

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields:					
Ace	4	1	....	3	80
Amelia	120	107	1	12	59,418
Anahuac	100	86	7	7	46,084
Arriola	1	1	....	....	68
Bammel	1	....	1	....	.....
Barbers	14	12	....	2	2,681
Batson	12	10	....	2	1,241
Big Creek	11	9	....	2	1,518
Big Hill, Jefferson	3	1	....	2	14
Blue Ridge	6	4	1	1	814
Boling	12	10	....	2	2,014
Brenham	5	1	....	4	10
Bryan Mound	2	....	....	2	.....
Call	2	....	....	2	.....
Clay Creek	7	1	1	5	77
Cleveland	7	5	1	1	1,270
Clinton	3	....	2	1	.....
Conroe	26	20	....	6	10,071
Cotton Lake	5	4	....	1	709
Damon Mound	4	2	....	2	80
Danbury	2	2	....	....	503
Dickinson	55	49	1	5	24,329
Esperson	11	7	....	4	1,277
Fairbanks	6	5	....	1	1,909
Fannett	6	4	....	2	1,320
Five Corners	7	6	1	....	612
Friendswood	16	12	....	4	7,195
Gillock	1	1	....	....	770
Goose Creek	16	13	....	3	1,056
Green's Lake	4	....	1	3	.....
Hankamer	5	3	2	....	192
Hardin	18	12	....	6	11,399
Hastings	330	318	....	12	183,026
Hawkinsville	2	....	....	2	.....
High Island	15	12	....	3	3,080
Hitchcock	3	1	....	2	474
Hockley	1	....	....	1	.....
Hull	34	27	1	6	8,582
Humble	17	17	....	....	2,022
Katy	1	....	1	....	.....
Labelle	1	....	....	1	.....
Lake View	2	....	....	2	.....
Livingston	5	3	1	1	561
Lochridge	24	22	....	2	9,353
Louise	9	6	....	3	1,269
Magnet	17	15	....	2	2,511
Manvel	32	22	1	9	9,423
Markham	16	8	1	7	1,653
Mykawa	2	2	....	....	504
Nome	35	23	6	6	7,777
North Cheek	2	2	....	....	817
Old Ocean	5	5	....	....	1,388
Orange	4	3	....	1	1,395
Orchard	6	3	....	3	751
Palacios	5	1	....	4	85
Pickett Ridge	8	5	....	3	505
Pierce Junction	16	14	....	2	5,100
Pledger	2	....	....	2	.....
Port Neches	1	....	....	1	.....
Raccoon Bend	23	11	....	12	2,904
Sandy Point	7	5	1	1	319
Saratoga	3	2	....	1	89
Seabreeze	8	4	1	3	1,603
Segno	30	25	....	5	10,741
Silsbee	26	23	3	....	7,861
Sour Lake	3	2	1	....	100
S. Bay City	5	5	....	....	1,782
S. Cotton Lake	10	8	....	2	2,531
South Houston	30	24	....	6	7,196
South Liberty	1	1	....	....	85
Spanish Camp	2	....	2	....	.....
Spindletop	9	8	....	1	2,033

(Continued on next column)

Texas Gulf Coast—(Continued)

Field or County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fields (Cont.)					
Spurger	4	4	....	....	1,927
Stratton Ridge	1	....	....	1	.....
Sugar Land	1	....	....	1	.....
Thompsons	3	2	....	1	215
Tomball	85	67	10	8	29,047
Turtle Bay	21	17	2	2	8,223
Van Vleck	6	4	....	2	2,853
West Beaumont	19	16	3	....	4,918
West Columbia	16	14	....	2	8,306
Withers	28	24	2	2	4,435
Wilson Creek	2	1	....	1	152
Counties (Wildcats):					
Austin	4	....	....	4	.....
Brazoria	7	2	....	5	70
Brazos	2	....	....	2	.....
Chambers	6	1	....	5	25
Colorado	6	1	....	5	75
Fort Bend	11	....	1	10	.....
Galveston	3	1	....	2	219
Grimes	1	....	....	1	.....
Hardin	2	....	....	2	.....
Harris	10	1	....	9	16
Jefferson	7	1	....	6	482
Liberty	5	....	....	5	.....
Madison	1	....	....	1	.....
Matagorda	8	1	....	7	216
Montgomery	5	....	1	4	.....
Newton	2	1	....	1	125
Polk	4	1	....	3	520
San Jacinto	2	....	....	2	.....
Trinity	2	....	....	2	.....
Tyler	2	....	....	2	.....
Walker	3	....	....	3	.....
Waller	4	....	....	4	.....
Washington	2	....	....	2	.....
Wharton	8	....	2	6	.....
Total, 1937	1,537	1,174	59	304	516,055
Total, 1936	1,127	816	35	276	327,915

Texas Panhandle

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Carson	94	77	14	3	43,785
Childress	1	....	..	1	.....
Collingsworth	2	....	..	2	.....
Dallam	1	....	..	1	.....
Deaf Smith	1	....	..	1	.....
Gray	280	271	5	4	133,080
Hansford	1	....	1	..	.....
Hutchinson	315	286	20	9	142,580
Moore	96	3	92	1	484
Potter	3	....	3	..	.....
Sherman	1	....	..	1	.....
Wheeler	42	18	18	6	2,752
Winkler	1	....	..	1	.....
Total, 1937	838	655	153	30	322,681
Total, 1936	665	475	159	31	252,613

West Texas

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Andrews:					
Deep Rock	1	1	....	....	157
Emma	1	1	....	....	98
Fuhrman	13	13	....	....	7,748
Means	29	27	....	2	15,197
Ogden	1	....	....	1	.....
Others	13	1	....	12	5
Bailey	2	....	....	2	.....
Cochran	5	2	....	3	511
Coke	1	....	....	1	.....
Crane:					
Gulf-McElroy	15	15	....	....	4,820
Jordan	11	10	....	1	17,979
McCamey	74	63	....	11	34,288
Sand Hills	36	31	....	5	47,234
Waddell	15	13	....	2	71,805
Wildcats	3	1	....	2	90
Wildcats	7	....	....	7	.....
Crockett, World	1	1	....	....	287
Culberson	1	....	....	1	.....
Dawson	3	2	....	1	35
Etor:					
Foster	79	75	1	3	43,806
Goldsmith	319	314	....	5	366,488
Harper	17	17	....	....	12,400
Judkins	30	28	....	2	9,665
N. Cowden	77	74	....	3	46,193
Wildcats	2	....	....	2	.....

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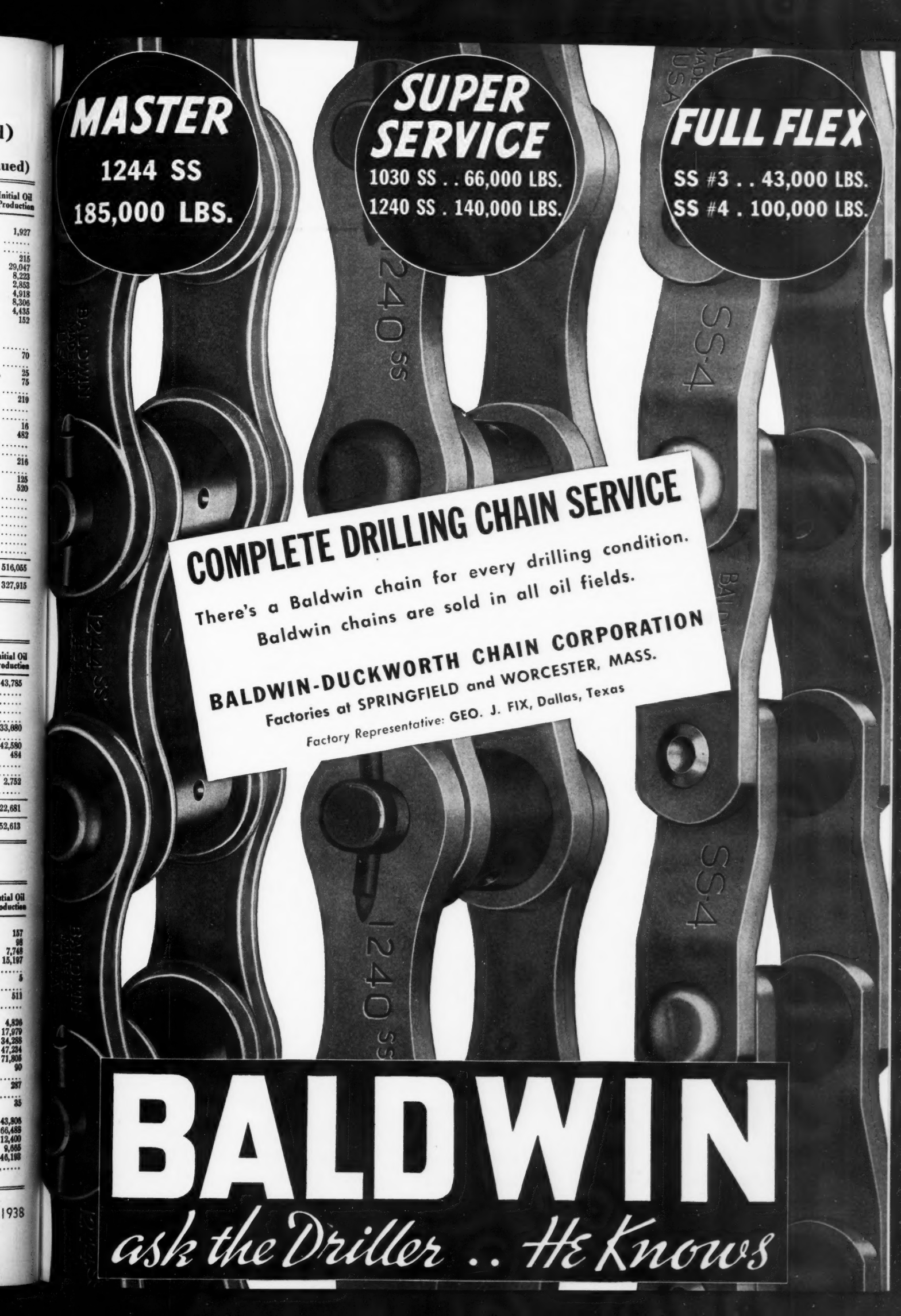
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Wells Drilled in the United States in 1937, by Counties and Fields—(Continued)

West Texas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Fisher:					
Rotan	15	13	....	2	25,243
Royston	7	7	....	....	680
Unclassified	12	5	....	7	1,248
Robinson	3	3	....	....	9,600
Gaines:					
Seminole	3	3	....	....	1,108
Wasson	13	11	....	2	11,134
Unclassified	15	2	....	13	533
Garza	5	1	....	4	75
Glasscock:					
Unclassified	34	24	....	10	13,570
Carter	1	1	....	....	45
World-Mc-Dowell	1	.....	....	1	.....
Hockley	4	2	....	2	934
Howard	111	102	....	9	73,941
Jones	245	163	....	82	106,520
King	1	.....	....	1	.....
Loving:					
Mason	7	3	....	4	1,627
Wheat	4	4	....	....	839
Wildcats	2	.....	....	2	.....
Martin	1	.....	....	1	.....
Menard	1	.....	....	1	.....
McCulloch	1	.....	....	1	.....
Mitchell	3	.....	....	3	.....
Nolan	2	.....	....	2	.....
Pecos:					
Masterson	12	9	....	3	2,538
Netterville Pool	7	7	....	....	1,369
Pecos Valley	25	20	....	5	2,176
Taylor Link	7	6	....	1	1,193
Toborg	44	38	....	6	1,260
Yates	31	30	....	1	882,230
Wildcats	37	3	....	34	69
Presidio	1	.....	....	1	.....
Reagan	3	.....	....	3	.....
Reeves	2	.....	....	2	.....
Runnels	2	.....	....	2	.....
Scurry	3	1	....	2	14
Sterling	2	.....	....	2	.....
Stonewall	2	.....	....	2	.....
Taylor	9	3	....	6	39
Terrell	1	.....	....	1	.....
Terry	4	.....	....	4	.....
Tom Green	2	.....	....	2	.....
Upton:					
Gulf-McElroy	10	10	....	....	11,462
McCamey	317	293	....	24	154,265
Unclassified	7	7	....	....	4,012
Wildcats	3	.....	....	3	.....
Ward	472	438	2	32	379,343
Winkler:					
Bashara	2	2	....	....	273
Brown-Altman	7	6	1	....	6,251
Eaves	6	6	....	....	1,884
Emperor	32	28	3	1	20,467

(Continued on next column)

West Texas—(Continued)

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Winkler (Cont.)					
Gulf-O'Brien	5	5	....	....	2,400
Halley	17	17	....	....	11,103
Henderson	72	72	....	....	293,090
Hendrick	4	4	....	....	2,483
Kermit	419	415	3	1	357,266
Keystone	51	51	....	....	19,906
Leck	2	1	....	1	2,092
Scarborough	8	8	....	....	1,549
Sealy	1	1	....	....	194
Wildcats	4	.....	....	4	.....
Yoakum:					
Bennett	2	2	....	....	486
Wasson	5	5	....	....	1,912
Unclassified	11	4	....	7	1,762
Total, 1937	2,898	2,525	10	363	3,088,697
Total, 1936	1,579	1,350	18	211	1,962,190

West Central Texas

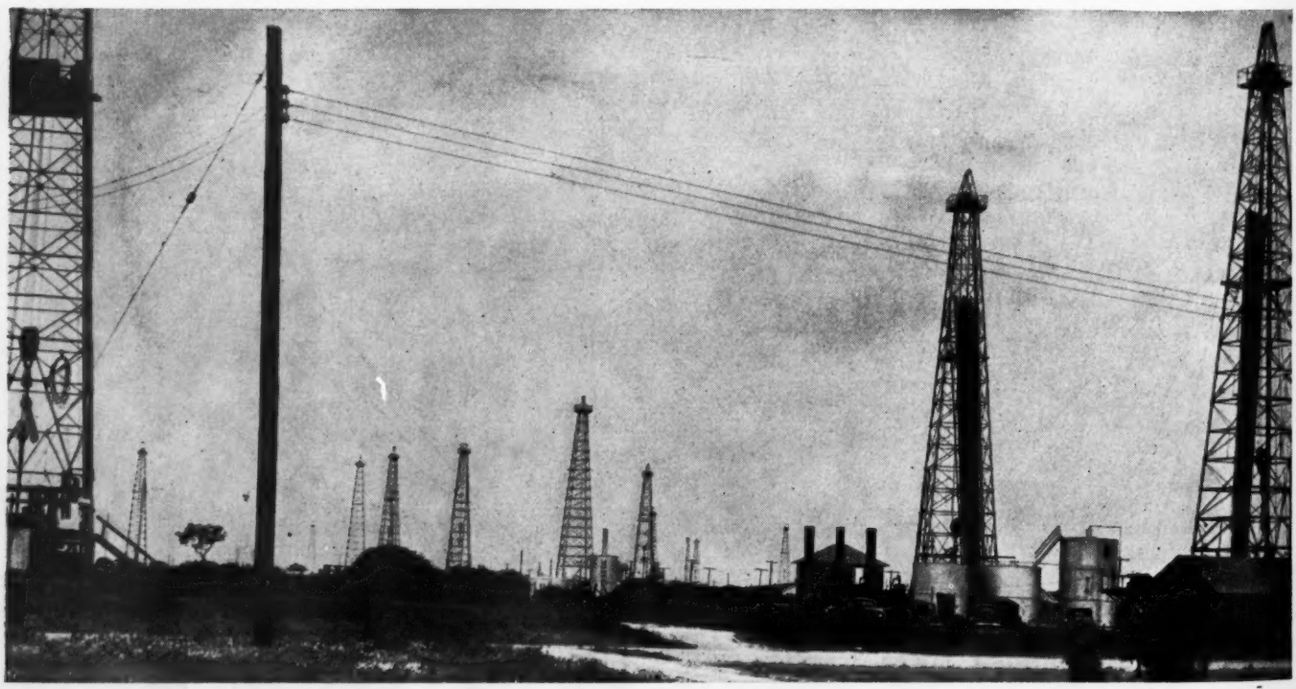
County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Brown	25	9	3	13	631
Callahan	52	6	3	43	148
Coleman	18	4	4	10	260
Comanche	2	...	1	1	.....
Eastland	31	12	6	13	1,320
Erath	2	1	..	1	72
Hamilton	3	...	..	3	.....
Johnson	1	...	..	1	.....
McCulloch	5	...	..	5	.....
Palo Pinto	14	2	3	9	35
Parker	1	...	..	1	.....
Shackelford	231	126	3	102	9,911
Stephens	17	6	2	9	209
Tarrant	1	...	..	1	.....
Total, 1937	403	166	25	212	12,586
Total, 1936	463	199	25	239	15,468

Utah

County	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Daggett	1	...	1	..	.....
Total, 1937	1	...	1	..	.....

Wyoming

County and Field	Completions	Oil Wells	Gas Wells	Dry Holes	Initial Oil Production
Albany:					
Wildcats	1	...	..	1	.....
Quealy	7	7	..	..	2,050
Big Horn:					
Bryon	5	4	1	..	1,130
Garland	6	6	..	..	5,934
Zeisman	1	...	..	1	.....
Carbon:					
Bunker Hill	2	...	1	1	.....
Big Medicine Bow	2	1	1	..	3,240
Rock River	4	2	..	2	3,765
Others	6	1	2	3	240
Converse	3	2	1	..	804
Freemont:					
Muskrat	1	...	1	..	.....
Wertz	1	1	..	..	2,400
Goshen	2	...	..	2	.....
Johnson, Billy Creek	1	...	..	1	.....
Natrona:					
Salt Crk	1	1	..	..	211
S. Casper Crk.	1	1	..	..	130
Niobrara:					
Lance Creek	24	22	1	1	22,072
Middle Struc	1	...	..	1	.....
Park:					
Badger Basin	1	1	..	..	200
Elk Basin	1	...	1	..	.....
Others	1	1	..	..	360
Sheridan	1	...	..	1	.....
Sublette:					
Dry Piney	3	...	..	3	.....
LaBarge	3	3	..	..	180
Sweetwater:					
Cherokee Ridge	2	...	1	1	.....
N. Baxter Basin	1	1	..	..	3,000
Uinta	1	...	..	1	.....
Washakie, Hidden Dome	8	4	..	4	107
Wertz	1	1	..	..	285
Weston:					
Dewey	1	...	..	1	.....
Osage	12	6	..	6	60
Total, 1937	105	65	10	30	46,168
Total, 1936	102	72	8	22	57,273



Scene in the Corpus Christi area, South Texas, where drilling was heavy in 1937, as in most districts of the United States.

Trade Mark ~

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TULSA, OKLAHOMA, U. S. A.

"NOT A SINGLE WELL DOWN DURING THE BLIZZARD!"

With these words, an Oklahoma farm boss expressed his satisfaction from having equipped his lease with O'Bannon De-Luxe Pumps before the January-February blizzard of last year.

You will find that the O'Bannon DeLuxe Pump deserves its reputation for dependability. It is made for 2", 2½" and 3" tubing in lengths of 8, 10, 12 and 15 feet. Four plungers—repack, eight-cup, combination, and discpak — all guided with metal bushings. Designed by engineering experts. It is made of the finest materials, including Chromalloy balls and seats and heat treated low-lift cages.

Three Sizes,
Four Lengths,
Four Plungers

When the flowers bloom in the spring, will you be able to say, "Not a single well down during the blizzard"?

Ask to see this pump at your supply store

WALTER O'BANNON CO.
Tulsa, Oklahoma

O'BANNON
DELUXE
PUMPS

Paul Peebles Does Some Estimating And Forces His Figures

My Loving Cleopatry:

While I been waiting down here to see if the pres. really was serious in my wanting to be on the supreme court, I found out all about a conspiracy of the idle ritch against prosperity. It come about in this way:

This ain't the onliest time I been a applicant for a high office and the head-knocker polititians have forgot me, so I says to myself, it may be that the fact that I was a member of the KuKlux and been against the concentration of wealth by exampl and precept as the good book says, will be forgot so maybe I had better get a job before my stomach and WPA money gives out at the same time. So I went to THE OIL WEEKLY office and applied myself for a job. And I got her, helping to tell what the oil industry will do in 1938 and there is where I found out about this conspiracy which Pres. Roosevelt ought to know about right away and I'm the man that can tell him.

This OIL WEEKLY bunch ought really to be knowed as the OIL WEEKLY bunch because they don't want to say nothing unless somebody else has told them what to say. For instants, with all my brains here to inform them how much money will be spent and how many wells will be drilled, they went right ahead and asked about five hunderd oil men, big uns and little uns, to tell them what their plans for 1938 would be. And, Cleopatry, honey, these oil fellers, from the guy with a little huncher up in Pennsylvania to the bird whose gusher Col. Thompson won't let produce no more than 20 bbls. a day, all of these idle ritch, honey, hedge this way and hedge that way and say that they are willing to make a estimate but that unless congress or the pres. does something to stop this here depression, they are afraid that the boys which buys the gasoline may not buy enough for them to drill what wells they had planned to drill.

Says I to the editor, "hell," says I, "that ain't no way to make a estimate. What this country needs is more and deeper oil wells and we got lots of land to drill them on. East Texas operators has drilled on 130,000 acres and I know lots better places to live in than East Texas and besides they is lots of counties in this grand old USA which needs the money more than East Texas and why not get the pres. to make a law saying that in the future each and every county in this grand old USA will drill one hundred wells a year or month and I don't know how many counties they are but I'd guess we could double the drilling in this grand old USA in a yr. if we would adopt some such constructive policy and, hell," says I, "it has got as much sense to it as a lot of things I have seen done lately."

"For instants?" says the editor.

"Well," says I, "they was a big operator in East Texas told a man while I was standing on the corner of Rusk and Fannin, that his company had spent two (2) million dollars drilling proven locations in East Texas last yr. and they didn't have no more allowable at the close than they did in the beginning so," says I, "why not spend that money where it would of done some good.

"And," says I, "what is the diffrents between plowing up cotton and corn and drilling oil wells where you know there ain't no oil."

And says he, "You're right at that."

But when this editor put me to work helping him all I was allowed to do was to sharpen pencils and his estimate ain't no more mine than that oil exposition building down here is Houston's.

These editors was continually harping about locations yet to be drilled in this field and that, and what was the wildcat record of this area and that until I got plum tired of sitting down. You'd think they would of got hep to the times and made their guesses in large flowing figgers like the example they been set from Washington.

Now if it was me making them I would have stood out for round numbers and the rounder they are the better I like 'em. Here is what I would figger:

Arkansas 10,000 wells. (I was born in Arkansas and the idea of holding her down riles my instincts.) Texas 100,000 wells. (I was raised in Texas since I was knee high to a nubbin and my girl lives there and for good measure I'd add another 50,000 for Goose Creek alone.) Mississippi I'd give 5000, and Louisiana I'd give 20,000 because the folks at Baton Rouge always did like big numbers. Then I'd move over to Alabama and I'd drill her so full of holes that the natives would think the stars had fell again. Georgia is a grand old Southern State and I'd punch 15,000 over there. Virginia has been overlooked but maybe on account of Senator Byrd and Carter Glass I'd better not go so strong there if I want the pres. to pass this law. But Kentucky —dear old Kentucky—if she rates as the head of the party and the supreme court by the pres.'s orders, then she'd rate at least 60,000 wells (you can't drill 'em deep there on account of the granite being so close to the ground so maybe we'd better raise Kentucky another 25,000—and if anybody raised Kentucky 25,000 she'd call and raise again). I ain't figured it all out exactly according to how I will get the pres. to pass the law, but you can see that the democratic south is entitled to something and I'd sure give it to her.

Oklahoma is entitled to better treatment than she has been getting what with Gov. Marlin and all, so I'd shut my eyes and hit the cyphers until I run out of 'em, and believe me, Cleo, if we done that up in Washington we'd certnly have prosperity and have it soon because the wells which didn't get oil might get water and if they didn't get water we could keep a lot of men busy just counting the holes to see that the oil men hadn't chisled on us in the drilling.

Your loving Paul.

MEN IN THE INDUSTRY'S NEWS

WILLIAM V. VIETTI, C. B. WILLIAMS AND J. K. HUFENDICK TRANSFERRED TO SOUTH AMERICA BY TEXACO

»

ROY WIGHT SUCCEEDS HUFENDICK BUT OTHER SUCCESSORS ARE NOT ANNOUNCED AS YET

»

THREE operating executives in its Texas divisions have been transferred to South America by The Texas Company.

William V. Vietti, who has been senior petroleum engineer for The Texas Company at Houston since 1933, soon will sail from New York for Bogota, Colombia, where he will assume duties of local manager of The Texas Petroleum Company, wholly owned subsidiary of the company. His succesor in the Gulf Coast district has not been named.

Vietti will be accompanied on the trip by C. B. Williams, formerly assistant manager of the West Texas Division with headquarters at Fort Worth, who is being transferred to Cucuta, Colombia, as manager of Colombian Petroleum Company in charge of development and production, and J. K. Hufendick, formerly West Texas drilling superintendent for The Texas Company with headquarters at Wink, Texas, who will become field superintendent for Colombian Petroleum Company on the Barco concession.

The vacancy created by Hufendick's departure from Wink will be filled by Roy Wight. A successor to Williams in Fort Worth has not been chosen.

Vietti obtained his Bachelors, Masters and Doctors degrees at the University of California. His first position in the oil business was in the research department of the old Marland Oil Company in 1926. That same year he was made assistant chief petroleum engineer of the company. In January, 1929, he became petroleum engineer for Continental Oil Company at Big Spring, Texas. Late that year found him a petroleum engineer with The Texas Company at Wink, Texas, where he remained until transferred to Cisco, on December 15, 1932. In April, 1933, he was made senior petroleum engineer and moved to Houston, which position Vietti occupied until accepting the South American assignment last week.

WM. V. VIETTI

GEORGE H. BURRESS, consulting geologist of Oklahoma City for the past several years and formerly with Cities Service Oil Company, is organizing a geological department for Stahl Petroleum Corporation. Burress is a graduate of the University of Oklahoma.

J. G. (JACK) PEW, Dallas official of the Sun Oil Company, is spending several weeks in the company's general office at Philadelphia.

D. V. CARTER, chief petroleum engineer of Magnolia Petroleum Company, Dallas, visited Wichita, Kansas, late last week for a conference with the company's engineers and geologists.

L. J. HANDY is land man for Transwestern Oil Company in Oklahoma and Kansas, succeeding Guy Hannum, resigned. Handy has been 11 years with Cities Service Oil Company, 7 years being in the land division.

D. S. WALLBRIDGE, president, heads the list of directors of Columbia Oils, Limited, elected when shareholders held their annual meeting last week in Vancouver, B. C. The company is engaged in drilling an important wildcat test, now below 6800 feet, in the Flathead-Sage Creek area of British Columbia. Other directors named are A. J. Hendry, F. E. Burke, J. L. Trumbull, W. A. Sutton, Robert Wilkinson, H. McL. Russell, O. C. Thompson, A. K. Leitch and G. H. Kirkpatrick.

FLORONDO SCHWEITZER was elected president of Sebewaing Gas & Oil Company when the firm held its annual meeting at Sebewaing, Michigan, last week. Other officers are August Eberlein, vice president; Otto Eisengruber, secretary-treasurer, and O. F. Armbruster, director.

HOWARD QUINLAN, field manager for Colombian Petroleum Company, operating in the Barco concession in Colombia, is visiting in New York.

CLAUDE E. KELLY, Drilling & Exploration Company, Los Angeles, is in the Rio Pachitea region of Peru, where he is drilling a well at Agua Caliente for Blue Goose Oil Company on the old Selden-Breck concession, now being prospected by the latter company.

DEWEY A. JORDAN, superintendent at Great Bend for The Atlantic Refining Company, was named chairman of the Western Kansas chapter of the American Petroleum Institute at an organization meeting held last week in Great Bend.

Other officers are Henry Nething, superintendent at Ellinwood for Stanolind Oil & Gas Company, first vice chairman; George Neylon, Conway-Owens Lumber Company, Hays, second vice chairman, and Harry Glover, American Manufacturing Company, Ellinwood, secretary-treasurer.

Members of the executive committee are Frank Herring, Republic Natural Gas Company, Ellinwood; J. Sutherlin, Hays; Tom Whittington, Great Bend; Ted McKnight, Plainville; O. F. Hawkins, Great Bend; E. C. Lawrence, Great Bend; Jack Cleverling, Russell; Fred Shelton, Great Bend; Dale Osmer, Chase; C. R. Bickel, Great Bend; J. Julian, Great Bend, and M. Bradley, Chase.

JOHN ALBAN will become head of the lease and land department of Stahl Petroleum Corporation, Oklahoma City, as of February 1.

GEORGE E. WELKER was named president of United Natural Gas Company when directors elected last week at a stockholders meeting in Oil City, Pennsylvania, designated officers of the company. William H. Locke was named vice president, and H. S. Rose secretary and treasurer. Other members of the directorate are W. J. Judge, G. H. W. Sherman, P. L. Mulkin and J. G. Montgomery, Jr.

H. S. ROSE, William H. Locke, A. C. Burwell, G. H. W. Sherman, J. G. Montgomery, Jr., George E. Welker and W. J. Judge were named directors of Mars Company when stockholders held their annual meeting last week in Oil City, Pennsylvania. Following the stockholders meeting, directors elected George E. Welker, president; A. C. Burwell, vice president, and H. S. Rose, secretary and treasurer.

D. B. McCALMONT, Franklin, was reelected president of the Central Pennsylvania Oil Producers Association when directors of the organization held their annual meeting in Oil City last week. Other officers are W. J. Brundred, Oil City, and W. D. Doyle, Franklin, vice presidents; H. D. Brown, Oil City, secretary, and E. E. Grimm, Franklin, treasurer. J. M. Bailey, Pleasantville, and J. M. Bloss, Titusville, were added to the executive committee, succeeding George Bayliss and J. B. Osborne, both of Titusville, who died during the past year.

Other members of the directorate are: O. H. Culbertson and Frank Schreffler, both of Clarion; James T. Foster, Isa H. Dale and W. O. Milton, all of Franklin; Isaac Hess, Van; S. Y. Ramage III, Dr. H. A. Downs, Howard Smithman and John H. Glass, all of Oil City; J. E. McComb, Frank Bowers and Eugene Moyer, all of Rouseville; B. A. Porter, Harrisville; Alex Warner, and Dr. B. W. Bedford, both of Titusville; H. J. Crawford,

THERE'S SPEED TO SPARE with the CAVINS

The speed of cleaning out a well with the Cavins as compared to other types of clean-out tools may be likened to the speed of the modern China Clipper as compared to the old clipper type sailing vessels.

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Emlenton; H. R. Panton, Foxburg; S. F. Amsler, St. Petersburg; L. S. Neely and F. G. Youkers, both of Knox; Ralph Hettenbaugh, J. B. Porter, Earl Hoffman and Harry H. Craig, all of Clintonville, and Wilbur Schofield and V. G. Monroe, both of Pleasantville.

FLOYD SLAUGHTER was named secretary of the Saginaw Valley Oil Men's Club to succeed Samuel Rowley, who resigned because of illness. Benjamin F. Hake, Saginaw, president of the Michigan Geological Society, addressing the club during its last meeting predicted that future development of Michigan fields would bring deeper drilling. He pointed out that glacial deposits that cover the real surface make exploration work difficult, and that even areas now considered dry will prove productive with deeper drilling.

GLENVER McCONNELL, chief mechanical engineer for Shell Petroleum Corporation with headquarters in Tulsa, was named president of the Oklahoma Society of Professional Engineers when the organization held its annual convention last week.

T. R. BRENNAN, field representative for the Kansas Corporation Commission at Hutchinson and Burrton, has been appointed office manager of the oil and gas conservation division of the commission, announced E. G. Dahlgren, director. Brennan succeeds John P. Roberts, who recently resigned to become assistant manager of the Kansas Independent Oil & Gas Association.

JOHN N. TROXEL, chief geologist for The Texas Company in Kansas, Oklahoma and Kentucky, was in Ridgeway, Pennsylvania, last week to attend funeral services for his father, Joseph N. Troxel, who died January 22.

T. J. FITCH, vice president and manager of Magnolia Pipe Line Company, was due to return to Dallas headquarters late last week after visiting Los Angeles and other California centers since the fore part of the year.

DIED:

J. W. LEONARD, 70, internationally known as a pioneer in oil and gas enterprises, died January 25 at the home of his sister in Washington, Pa. At the time of his decease, he was president of Leonard Petroleum Company, Leonard Oil & Gas Company, and Leonard Developmnet Co. As a boy, Leonard procured a job as pumper on a lease a short distance from the original Drake well. When 19, he moved to Washington, Pa., and acquired a string of tools. Later he operated in West Virginia, Ohio, Illinois, Kentucky and even Canada. Then followed several successful operations in Texas. From 1907 until 1914, he was in charge of extensive drilling in Mexico. His next move was to South America, where he gained control of three million acres in Colombia and six million acres in Ecuador. He drilled the first producing well in Colombia in 1917 and 1918. During his life time he incorporated the Mexico Fuel Oil Company and the Penn-Mexico Fuel Oil Company, and was an organizer in Tropical Oil Company now owned by International Petroleum Company.

STREETER ALLISON McCOY, 47, died in San Antonio, January 27. His body was sent to Mounds, Oklahoma, for burial. McCoy, associated with Marjo Oil Company, at the time of his death, was well known in the oil industry. He was born November 20, 1891, in Coy, Mo., and spent the early part of his life in Oklahoma as cashier in several banks. Following that, he was with Independent Oil & Gas Company of Tulsa, later with Josey Oil Company of that city. He came to Texas in 1928 and has been with a number of companies in the South Texas district since that time.

CHARLES P. REES, 60, vice president of the Vanadium Corporation and a former geologist and mining engineer, died January 19 of pneumonia at his home in New York.

JAMES D. HART, 42, secretary-treasurer of Indian Oil Company and of the Edward S. Moore interests in Wyoming and Montana, died suddenly January 17 at Sheridan, Wyoming, of a heart attack.

DR. PONTUS H. CONRADSON, 86, retired oil chemist, died January 21 at his home in Franklin, Pennsylvania, after a year's illness. He was chief chemist of Galena Signal Oil Company from 1895 to 1921, and was internationally known as the developer of the Conradson process for determining excess carbon in oil products and a means for their elimination.

ROY A. STREETER, 54, of Stearns-Streeter Oil Company, died January 20 in a Wichita, Kansas, hospital following a heart attack. Born in Bolivar, New York, his father, Gustavus Streeter, was a pioneer in the old Pennsylvania fields. The Stearns-Streeter partnership was formed in 1915 and the firm was largely instrumental in development of the Augusta and Peabody fields, and recently of the Russell fields in Western Kansas.

ZEKE LOHMAN, 49, for the past 12 years engaged in oil production activity as an independent operator and as land man for major companies and independents, died January 18 in Flora, Illinois, following a brief illness. Until recently, he was engaged in the Illinois coal basin area for Benedum-Trees Oil Company and had formerly been with Gulf Refining Company and the Standard Oil Company of Louisiana. His home was in Shreveport. Surviving are his wife and his mother.

L. W. RICHARDS, 59, secretary of the Simms Oil Company prior to its merger with Tide Water Associated Oil Company, died January 22 at his Dallas residence. He was office manager of a Dallas insurance agency at the time of his death.

ANTHONY CARLSON, inventor of oil equipment, died recently in Los Angeles, California. He sold some of his inventions to Reed Roller Bit Company, Houston. He was not only an inventor of oil field equipment but also an inventor of musical instruments.

FRANK SCHNEIDER, production superintendent for Tide Water Associated Oil Company in the West Texas territory, died last week.

Gasoline Remains Weak Spot

Except for motor fuel, stocks are at reasonable levels and situation is some better despite general business conditions

DESPITE the still existing uncertainty of general business conditions, the oil markets did not show a material change the past week.

The comparatively stable prices for the various products of the industry in the past few weeks give hope that the oil market will, at least temporarily, hold its own and may gradually recuperate from the ill effects of excessive gasoline stocks, which have endangered the strong position of the industry since the latter part of last year.

Encouraging Factor

An encouraging factor in this direction is the recent order of the Texas Railroad Commission requiring the shutting down of all Texas oil wells for six consecutive Sundays, beginning January 23. In consequence of this order, it is estimated that the Texas production of crude oil will be approximately 200,000 barrels a day less within this period than has been the case prior to this strict order.

Undoubtedly, this substantial reduction in output will materially aid in the preservation of a fairly stable crude oil market and therewith a continuation of the present price level for gasoline.

A recent statement by the Louisiana Conservation Commission indicates that Louisiana allowables for February are about 11,000 barrels daily below those for January, although they remain approximately 5,000 barrels higher than the Bureau of Mines estimates. In any event, it may be expected that allowables for the six leading oil states will be reduced in February.

Statistics Remain Favorable

The statistical figures meanwhile remained at about the same levels as in previous weeks. Even the extremely weak gasoline situation showed a slight improvement during the week ended January 22.

Crude oil production, as well as refinery operations, is running at moderate proportions, well in conformity with current demand.

Production for the week ended January 22 averaged 3,506,200 barrels daily, representing an increase of 9.4 percent over the same week in 1937. However, considering the increased demand for petroleum, which has been running about 10 percent higher in the first few weeks of 1938 than in the corresponding period of last year, this gain in production is well in proportion.

Crude runs to stills in the week ended January 22 averaged 3,200,000 barrels daily, which was only 5.4 percent in excess of the similar week a year ago. Consequently, the refinery operations were in about the same favorable relation to petroleum demand as the crude oil production.

With the exception of gasoline, oil inventories remained advantageous. Crude oil stocks slightly rose from 303,078,000 barrels to 303,679,000, an increase of 601,000 barrels over the previous week, being only 5.4 percent larger than at the beginning of 1937.

The fuel oil market continued firm. The demand was good, stocks moderate and prices steady. Fuel oil stocks were cut down about 500,000 barrels in the week ended January 22, to 118,433,000 barrels. Despite this small decrease, the stocks were 14.5 percent larger than those on hand a year previously. However, consideration must be given to the fact that fuel oil consumption has been running about 15 percent higher this year than last, which justifies the considerable increase in stocks.

Excess inventories of gasoline are largely responsible for the weak market of this product. Stocks increased approximately 1,800,000 barrels in the week of January 22, or 21.4 percent over a year ago.

Refinery Prices

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4 to 4¼ cents a gallon; 63 to 66 octane, 4⅜ to 4½ cents; 67 to 69 octane, 4⅝ to 4⅞ cents; and 70 to 72 octane, 4⅞ to 5¼ cents.

Corresponding prices in the Chicago market were as follows: 3¾ to 4 cents, 4 to 4½ cents, 4½ to 4⅝ cents, and 4½ to 5 cents.

In East Texas the most common gasoline, 60-62 400 end-point, was priced generally at 4⅛ to 4¼ cents a gallon.

Kerosene prices f.o.b. Oklahoma re-

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496,400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 29	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 8	3,437,100	3,210,000	303,078,000	79,331,000	119,146,000
January 15	3,476,900	3,240,000	303,679,000	80,947,000	118,962,000
January 22	3,506,200	3,220,000	.....	82,785,000	118,433,000
January 23, 1937	3,205,150	3,055,000	†286,912,000	68,180,000	103,441,000
Change in past year	+9.4%	+5.4%	+5.8%	+21.4%	+14.5%

* All time peak. † Stocks January 9, 1937.

fineries ranged from 4¼ to 4½ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were 4⅛ to 4¼ cents and 4¼ to 4⅝ cents.

Fuel oil prices were mostly unchanged. In the Chicago market range oil was priced from 4⅛ to 4¼ cents a gallon. The No. 1 white oil was priced from 4⅛ to 4⅜ cents, and the No. 1 straw from 4 to 4⅛ cents. No. 2 straw was 3⅝ to 3⅞ cents and No. 2 dark from 3⅝ to 3¾ cents. No. 3 oil was 3½ to 3¾ cents. No. 4 was $1.05 to $1.10 a barrel to domestic consumers and 95 cents to $1.10 to industrial buyers. No. 5 oils were 80 to 85 cents for domestic and 77½ to 85 cents for industrial sales. The No. 6 oil was quoted to the usual industrial customers at 50 to 55 cents a barrel.

Fort Worth plans for Southwest A.P.I. men

Fort Worth, Texas.—Spring meeting of the American Petroleum Institute Division of Production for the Southwestern district will be held in Fort Worth March 24 and 25. Local committee on arrangements and entertainment, headed by R. B. Kelly, Pure Oil Company, perfected an organization January 27 to prepare for an attendance of 500 oil men. Preliminary plans call for the staging of a smoker and also a banquet as entertainment features. Special entertainment will be provided for wives of the visiting oil men. Convention headquarters will be located in the Blackstone Hotel.

Technical program slated for the district meeting will embrace subjects of particular interest to West Texas operators and field men.

Summary of Wells Completed in the United States Week Ending January 29, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	....	....	....	....	.....	....	.....
Arkansas	2	2	....	....	63	21	.....
California	31	25	....	6	20,988	101	101
Colorado	....	....	....	....	.....	2	2
Florida	....	....	....	....	.....	....	.....
Illinois	10	7	....	3	2,535	83	.....
Indiana	....	....	....	....	.....	6	16
Kansas	45	34	4	7	34,535	205	180
Kentucky	11	5	1	5	46	67	39
Louisiana	21	13	....	8	5,706	116	45
Michigan	12	6	....	6	1,151	72	86
Mississippi	....	....	....	....	.....	2	.....
Montana	1	1	....	....	25	5	12
Nebraska	....	....	....	....	.....	....	.....
New Mexico	10	9	....	1	2,505	48	63
New York	....	....	....	....	.....	5	.....
Ohio	16	3	8	5	33	96	191
Oklahoma	48	32	10	6	10,035	203	277
Pennsylvania	3	.....	2	1	.....	23	7
Texas	231	177	7	47	299,598	1,142	1,160
Utah	....	....	....	....	.....	....	.....
West Virginia	19	4	13	2	16	93	62
Wyoming	2	2	....	....	520	8	11
Total this week	462	320	45	97	377,756	2,298	2,252
Total last week	475	316	47	112	369,667	....	.....
Total this year	2,298	1,527	229	542	1,870,180	....	.....

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 46 of the issue of January 3. This schedule will appear only in the first issue of each month.

Federal 1937 oil taxes up $24,000,000

Treasury receipts from the direct oil and gasoline taxes last year aggregated almost $250,000,00, approximately $24,000,000 better than in 1936, it was reported January 21 by the Bureau of Internal Revenue.

Returns from the gasoline tax topped the two hundred million dollar mark to reach $203,025,000, compared with $186,542,000 in the preceding year, it was disclosed.

Collections from the lubricating oil taxes totaled $33,681,000, compared with $28,985,000 in the preceding year, while pipeline transportation brought in a revenue of $12,304,000, compared with $10,423,000, and $967,000 was collected from the processing levies, compared with $859,000.

The gasoline tax returned a revenue in December of $17,585,707, more than $1,000,000 under the November total of $18,674,817 but more than that amount above the $16,482,458 of December, 1936.

Receipts from the lubricating oils tax were $2,558,476 against $2,457,517 in November and $2,541,159 in December, 1936. While transportation by pipe line returned $1,074,545 against $922,322 the preceding month and $903,580 in the corresponding month of the preceding year, and the processing taxes amounted to $80,775 against $80,460 in November and $70,114 in December, 1936.

Texas production tax $15,000,000 during 1937

Texas oil operators have paid $100,466,700.14 in gross production taxes since 1905, when this tax was first required. Last year they paid $14,459,843.30, almost double that of any year since oil taxes were paid.

In addition to this, the operators paid in $900,133.99 in pipe line tax. All figures are for the fiscal year ending August 31, 1937, and are from records of the state comptroller, George H. Sheppard.

Comparison of Permits Granted for New Wells

STATE	Week Ending Jan. 29	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	5	21	21	.....	240
California	.....	125	125	106	1,584
Louisiana	.....	87	87	84	1,227
Kansas	37	163	163	166	2,663
Michigan	12	55	55	74	958
Oklahoma	49	175	175	215	2,711
Texas	269	1,078	1,078	1,352	17,238
Total	372	1,704	1,704	1,997	26,621

Production Drops Sharply

Texas shut down on Sundays responsible for decline of 168,000 barrels daily average; below Bureau estimate.

REFLECTING the recent Sunday shut-down order of the Texas Railroad Commission of all Texas oil fields, United States crude oil production dropped 168,000 barrels during the week ended January 29, averaging 3,319,750 barrels daily. For the first time within a long period the output was less than the Bureau of Mines estimated demand.

Although the Bureau of Mines recommendation for February is higher than for January, it can be expected that production in the coming month will be considerably less, as some of the leading states may follow the example of Texas to curtail output.

Lower production in the past week resulted mainly from the sharp cut in Texas and a slight decrease in Louisiana, which greatly exceeded minor increases in California, Oklahoma and Kansas.

Texas showed a decline of 181,025 barrels daily, averaging 1,209,425 barrels a day, or 141,475 barrels less than the Bureau of Mines estimate, and 148,148 barrels less than the state allowable.

Louisiana output decreased 1700 barrels to 248,975 barrels a day, which was 10,575 above the federal allocation, but stayed 7025 barrels below the allowable prescribed by the state.

California production was up 2900 barrels above the previous week's level in averaging 713,600 barrels a day, which was 35,300 barrels above the estimated demand and the recommendation of the Central Committee of California Oil Producers.

Oklahoma showed a gain of 10,225 barrels, having averaged 553,875 barrels a day. That was 12,725 barrels less than the Bureau of Mines recommendation and 3875 barrels more than the state allowable.

Kansas last week averaged 192,075 barrels a day, 2000 more than in the previous week, 12,775 barrels daily more than the Bureau of Mines estimate, and 5603 barrels more than the state allowable.

United States Crude Oil Production
Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Jan.)	State Allowable in January	BARRELS DAILY FOR WEEK ENDING January 29	January 22
TEXAS—				
Texas Panhandle	.....	.....	65,100	67,950
North Texas	.....	.....	62,200	72,400
West Central Texas	.....	.....	27,350	32,500
West Texas	.....	.....	172,550	199,200
East Central Texas	.....	.....	76,600	87,600
East Texas Field	.....	.....	424,000	493,200
South Texas	.....	.....	208,400	239,400
Texas Gulf Coast	.....	.....	173,200	198,200
Total Texas	1,350,900	1,357,573	1,209,425	1,390,450
CALIFORNIA—				
Long Beach	.....	.....	57,500	57,500
Santa Fe Springs	.....	.....	41,000	40,700
Huntington Beach	.....	.....	36,700	36,500
Dominguez	.....	.....	30,000	30,000
Inglewood	.....	.....	16,000	15,500
Ventura Avenue	.....	.....	35,500	35,500
Seal Beach	.....	.....	7,800	8,000
Midway-Sunset	.....	.....	77,000	77,000
Elwood	.....	.....	7,600	8,000
Kettleman Hills	.....	.....	82,500	84,000
Mountain View	.....	.....	14,500	14,500
Playa del Rey	.....	.....	7,500	7,500
Wilmington	.....	.....	70,000	61,000
Others	.....	.....	230,000	235,000
Total California	678,300	*678,300	713,600	710,700
OKLAHOMA—				
Oklahoma City	.....	.....	134,025	119,950
Seminole Area	.....	.....	103,700	107,075
Crescent	.....	.....	8,750	7,600
Lucien	.....	.....	12,500	11,600
Fitts	.....	.....	69,025	71,325
Edmond	.....	.....	7,750	8,975
Moore	.....	.....	7,025	9,675
Others	.....	.....	211,100	207,450
Total Oklahoma	566,600	550,000	553,875	543,650
LOUISIANA—				
North Louisiana	.....	.....	78,475	80,375
South Louisiana	.....	.....	170,500	170,300
Total Louisiana	238,400	256,000	248,975	250,675
KANSAS—				
Ritz-Canton	.....	.....	5,275	5,300
Chase	.....	.....	6,700	7,500
Hollow-Nikkel	.....	.....	2,500	2,475
Sedgwick	.....	.....	3,850	3,800
Burrton-Haven	.....	.....	12,100	12,200
Lorraine	.....	.....	2,875	3,150
Russell County	.....	.....	32,250	32,650
Silica—West	.....	.....	17,025	18,250
Silica—South	.....	.....	7,725	3,000
Others	.....	.....	101,775	101,750
Total Kansas	179,300	186,472	192,075	190,075
NEW MEXICO	103,100	107,100	107,300	107,150
MICHIGAN	54,100	.....	49,300	50,700
ARKANSAS	35,200	.....	42,450	41,025
MOUNTAIN STATES—				
Wyoming	55,500	.....	49,200	49,900
Montana	13,100	.....	13,900	14,050
Colorado	4,300	.....	4,500	4,600
Total Rocky Mountain States	72,900	.....	67,600	68,550
EASTERN STATES—				
Pennsylvania Grade	.....	.....	76,800	78,400
Southern Illinois (New Pools)	.....	.....	25,900	25,200
Illinois-Indiana (Old Pools)	.....	.....	9,900	10,900
Others, Eastern	.....	.....	22,500	20,400
Total Eastern States	128,000	.....	135,100	134,900
Total United States	3,406,800	.....	3,319,700	3,487,875

Recommendation of Central Committee of California Oil Producers.

New tanker being built for Atlantic

Philadelphia.—Construction of a second 18,500-ton welded tanker for The Atlantic Refining Company has been started by the Sun Shipbuilding and Dry Dock Company, Chester, Pa. The vessel is scheduled for delivery early in August, 1938. The "J. W. Van Dyke," a tanker of the same tonnage and welded construction launched from the Sun Shipyards in November, is scheduled for delivery to The Atlantic Refining Company next month. The two tankers are the world's largest welded ships now under contract.

OKLAHOMA FIELDS

Four tests underway in new Carter County area.

* * *

Oklahoma City north edge test is producer.

Tulsa.—Three locations were made in the new Oolitic lime zone of Carter County last week and a fourth test was nearing the actual operating stage.

The test which will probably be followed with most interest will be Wirt Franklin Petroleum Corporation's Ruth Williams Community 1, CNW SE 27-2s-3w, an east offset to the discovery producer drilled by Carter Oil Company and others two years ago.

The two new tests announced by Gulf Oil Corporation are McClure 2, CSE NE 28-2s-3w, west offset to Johnson 1, and Garrett 8, CNW SW 27-2s-3w, a south offset to the same well. Garrett 8 is west and slightly north of Carter et al's discovery producer. Gulf Oil Corporation was rigging up rotary tools at Lester 7, CNW, NW 35-2s-3w, south offset to its Smith Estate 1, CSW SW 26-2s-3w, a recent producer.

In the Milroy sector of Carter County, Carter Oil Company was drilling below 6167 feet at Carter-Harley 1, CNW NW 19-2s-3w. In Grady County, Gulf Oil Corporation was drilling below 10,130 feet at Thomas 1, SW NW NW 14-4n-5w, fifth well in the state to go below 10,000 feet.

South of the Stockton pool in Love County, Sinclair Prairie Oil Company resumed operations at Peabody 1, NEc 35-6s-2w. The test has a contract depth of 7000 feet.

Midway between the Hatler and Graham areas of Tillman County, a wildcat was getting started at John Laney 1, NWc 3-3s-18w, to be drilled by Pearson Tubing Service Company for interests in Oklahoma City and Frederick. It will be carried to around 4000 feet or to the Canyon lime.

Further testing of the new sand zone found at the west end of Cement pool in Caddo County two weeks ago, was delayed as casing collapsed at Ohio Oil Company et al's Lackey-2 4, in NE SW NW 11-5n-9w. Casing gave way while the well was being swabbed between 3424 and 3445 feet.

Largest producer in the field continues to be Ray Stevens' Griffith 2, SE NE SE 27-6n-10w, which made 1270 barrels of oil during the last 24-hour test, flowing through ½-inch choke.

Garfield Wildcat Shut Down

Harry Hollenback et al's Clark 1, NWc 34-21n-6w, Garfield County wildcat which has received considerable attention in this part of the state, was shut down for orders after a test at 7320 feet failed to show favorable results. Top of the second Wilcox sand was thought to have been found at 7297 feet.

Some impetus to further work in the Oklahoma City field was received last week as a new producer was recorded for the north edge of the field, where Stahl Petroleum Corporation's Miller 1, N/2 SE NW SW 15-12n-3w, had dolomite between 6390 and 6518 feet and was making an estimated 800 barrels of oil daily with 5,000,000 cubic feet of gas. A production test was being made.

In the Lamont area of Grant County, Carter Oil Company et al's Booher 1, CWL NW SW 16-25n-3w, was completed last week, flowing 2238 barrels of oil and 1448 barrels of water in 24 hours through casing. The well was originally drilled to 5432 feet, then plugged back to 5406 feet and drilled out to 5424 feet. It was making 56 gravity oil. Carter Oil Company et al's Barclay 1, CEL SE 17-25n-3w, was drilling below 5343 feet in shale.

Magnolia Petroleum Company's Reynolds 1, NWc SE 19-25n-3w, took a core early in the week between 6115 and 6119 feet, recovering 4 feet of green shale with no show. A later core from 6133 to 6134 feet had 1 foot of recovery consisting of hard, dry sand. It was drilling at 6135 feet.

Four miles southwest of the new Ramsey pool of Payne County, Helmerich & Payne and Ohio Oil Company were building rig for Richey 1, CNE NW 34-18n-1e, on a farm-out from The Texas Company. The wildcat, to go to the Wilcox sand, may prove a trend between the Ramsey and Langston pool of Logan County, to the southwest.

In the pool proper, the offsets were getting a good start. Columbia 1, NWc SW 18-18n-2e, south offset to Ramsey 1, was cementing surface pipe after spudding to 509 feet; Brandon Wetzell 1, SEc NE 13-18n-1e, the west offset was spudding below 370 feet and the southwest offset, Carl Wetzell 1, NEc SE 13-18n-1e, was preparing to spud.

Phillips Petroleum Company's Becker 1, NE NW SW 8-5n-10e, southwest of Calvin in Hughes County, cored from 6065 to 6068 feet and had a full recovery of sandy dolomite with a small stain of oil. On a drill-stem test at 5290 feet with packer set at 5830 feet, the well showed 90 feet of oil-stained mud. Previous to the test, cuttings had contained sand having an odor of oil and gas. It was shut down for engine repairs at 6010 feet.

Another test for the area near Citra in Hughes County will be started shortly as E. H. Moore made location for a test at NEc NW 30-4n-9e.

In the Dora pool of Seminole County, J. F. Smith and Commercial Drilling Company's Bowles 1, NE NW SW 32-7n-6e, was a producer, flowing 615 barrels of oil from 2937 feet in the Turman sand during the last 24-hour test. Top of the sand was at 2884 feet, and after flowing 328 barrels of oil natural in 24 hours, was shot with 50 quarts between 2894 and 2936 feet. It made 660 barrels of oil in the following 24 hours.

In extreme northern Seminole County, H. V. Woodson et al's Gilliland 1, SEc SW 24-11n-7e, found an odor of oil and gas in Misener sand between 4202 and 4204 feet. In another core, taken between top of the Hunton lime at 4205 and 4287 feet, a 20-foot recovery showed good saturation. Pipe has been set at 4262 feet. It was waiting on cement to set.

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Northeast Oklahoma A.P.I. at Bartlesville

Bartlesville.—More than 250 members of the northeast Oklahoma Chapter of American Petroleum Institute from most points in the northeast and central sections of Oklahoma and southeast Kansas, attended a meeting here Thursday.

In the afternoon the visitors were guests of the new plant and laboratory of the Bartlesville station of the United States Bureau of Mines. N. A. C. Smith, superintendent, was host. The party was divided into small groups and a member of the station staff conducted each through the station.

Later the visitors went to the plant of Reda Pump Company, where A. Arutunoff, executive vice president; P. E. Loye, vice president in charge of sales; and Harold Duck, Tulsa representative, were in charge of the inspection trip. In the evening this company was host for a buffet supper.

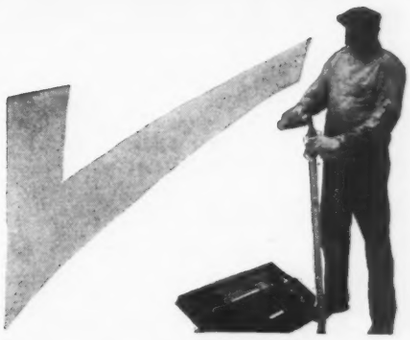
The evening program was in the Masonic building, where J. S. Warren, general superintendent of Cities Service Oil Company and vice chairman of the A.P.I. chapter conducted the technical program. L. R. Hodell, engineer of

Each man had a HOLE lot to learn!

This man learned it from the Self-Checking SURWEL GYROSCOPIC CLINOGRAPH

"SURWEL" provides a map of the complete course of the well prepared from actual photographic records. It automatically makes two surveys at greatest speed, one going in and one while coming out of the hole.

Time required for making two surveys of a 6000 ft. hole on the wire line about two hours, on the drill pipe about four hours. (U. S. Patents 1,124,068; 1,812,994; 1,898,473; 1,959,141; 1,960,038; 2,006,556; 2,012,138; 2,012,152; 2,012,455; 2,012,456 and others pending.)



This man learned it from the Self-Checking SYFO CLINOGRAPH

"SYFO"—used on a wire line, as a "Go-Devil" inside the drill stem, or on sand or bailing line in open hole—affords quick, inexpensive daily records of vertical deviation in drilling, without the use of dangerous acids. (U. S. Patents 1,962,634; 2,013,875 and others pending.)

This man learned it from the Self-Checking H - K CLINOGRAPH (Hewitt) (Kuster)

"H-K" designed for open holes only—provides permanent, accurate, photographic records of inclination and direction on paper discs five minutes after removing instruments from hole. (U. S. Patents 1,812,994; 2,027,642; 2,093,128 and others pending.)

. . . . . And many others are saving a HOLE lot of time and trouble with this new CORE ORIENTATION SERVICE

SPERRY-SUN'S Polar Core Orientation (U. S. Patents 1,792,639; 1,778,981; 2,089,216 and others pending) does not interfere with the progress of drilling. The orientation is determined in our laboratory, to which the selected cores taken by any type of core barrel in the ordinary course of drilling and properly marked, are shipped from any distances. No special equipment is required at the well, there is no loss of drilling time.

SPERRY-SUN WELL SURVEYING COMPANY

1608 Walnut Street, Philadelphia, Pa.

Tulsa, Oklahoma	Houston, Texas	Corpus Christi, Texas	Long Beach, Calif.	Bakersfield, Calif.	Lafayette, La.
425 Petroleum Bldg.	3118 Blodgett Avenue	451 Southern Street	549 E. Bixby Rd. (3800 Block Atlantic Avenue)	c/o Elks Club 17th and I Streets	Bank of Lafayette Bldg.

Carter Oil Company, Tulsa, gave an illustrated lecture on "Circumferential Welding of Casing," which had been on the program of the general A.P.I. meeting in Chicago in November. The motion picture of the Bureau of Mines on oil development in Mexico was also shown.

W. W. Warner, mayor of Nowata and president of the National Stripper Well Association, invited the chapter to hold its next meeting in that city.

WILLIAM H. LOCKE, A. C. Burwell, G. H. W. Sherman, W. J. Judge, George E. Welker, J. G. Montgomery, Jr. and H. S. Rose were re-elected directors of Sylvania Corporation last week. After the stockholders' meeting, directors named George E. Welker, president; J. G. Montgomery, Jr., vice president, and H. S. Rose, secretary and treasurer.

OKLAHOMA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Maxine Oil Co., Brady 6, sw nw ne se 5-2s-2w	*	1985
Gulf Oil Corp., Johnson 1, c sw nw 27-2s-3w	566	7970
Magnolia, E. T. Richards 74, ne ne ne nw 6-4s-3w (pb 1136)	60	1150
CHOCTAW COUNTY—		
J. A. True et al, Bolby 1, cnw sw 17-7s-19e	*	2175
CREEK COUNTY—		
L. B. Jackson, Pickett, sw nw sw 2-17n-8e (pb 2772)	¶1	2781
Link Oil, Jones 9, se ne se ne 32-18n-7e	70	2282
Bert Swift, Mantz 1, ne nw sw 1-18n-8e	¶1	2433
Eva Maud Bartlett. A. B. Sneed e½ nw nw 20-18n-9e	7	2687
L. B. Jackson, Alberta 2, nw ne nw 25-18n-9e	300	3056
Deep Rock, Peterson 1-3, c nw sw 33-19n-7e	20	2607
Sooner, Warren 2, nw nw se se 17-16n-11e	*	2395
GRADY COUNTY—		
T. H. McCasland, Thelma Clark 2, nw nw nw 8-3n-5w	10	1487
McCasland, Horton 1-A, se nw nw 8-3n-5w (pb 1879)	10	1882
Horton 4, ne nw nw 8-3n-5w	70	2822
HUGHES COUNTY—		
Meyers Drlg. Co. et al, Meadors 1, se se ne 33-9n-9e (pb 3363)	84	3383
JEFFERSON COUNTY—		
Bridwell-Continental, W. D. Seay "A" 12, nw ne nw ne 10-7s-5w	48	1240
O. E. Teagarden, Penniston 1, nw se se sw 16-7s-5w	8	798
KAY COUNTY—		
Shell & Continental, Horn 5, sw se se nw 8-28n-1w	289	3532
LINCOLN COUNTY—		
Sun Oil Co., Arinwine 5, nw se se 35-15n-2e	611	5133
MUSKOGEE COUNTY—		
Taylor-Guger, Barnett 1-B, nw nw nw ne 8-15n-15e	¶1.1	1156
NOBLE COUNTY—		
Phillips Pet. Co., Harbinson 1, nw nw sw 22-23n-2w	4046	4316
OKFUSKEE COUNTY—		
Burk Gries, Scott 1, sw sw nw 2-10n-10e	¶10.5	3721
Grimes, Alexander 3, nw ne ne 35-11n-9e	8	1499
Prince & Anderson, Barnett 2-A, nw nw sw se 35-11n-11e	*	1713
OKMULGEE COUNTY—		
R. H. Ford, Adams 15, sw se nw 6-14n-12e	*	1237
Hollifield & Howard, Derisaw 1-B, ne ne sw se 14-14n-12e	¶25	1712
L. C. Butler, McKinney 1-B, sw sw nw se 3-14n-14e	25	1199
PAYNE COUNTY—		
Deep Rock, Listom 1-A, cne nw 26-18n-3e	*	1565
PONTOTOC COUNTY—		
Continental, Thompson 4, e½ nw sw 1-1n-7e	250	4141
G. L. Thompson 3, ce½ sw ne 2-1n-7e	836	4172
Superior & Crusaders, Brydia 1, se sw se 24-2n-6e	1150	3834
Magnolia, F. C. Norris 6, nw se ne 21-2n-7e	105	3804
Metro Life 37, nw ne ne 27-2n 7e.	118	2575
Carter, Smith 9, sw nw nw sw 28-2n-7e (pb 2885)	54	3535
L. King et al, Fee 1, nw nw se sw 11-4n-6e (pb 742)	¶3	1180
POTTAWATOMIE COUNTY—		
Sinclair Prairie, O. Kilchee 6, ne nw sw 19-7n-5e	58	4306
J. F. Smith et al, Hathcock 1-B, se sw se 14-7n-4e	261	3177
SEMINOLE COUNTY—		
J. J. Deaner, Snider 1, ne ne ne 5-6n-6e	165	2890
Atlantic, Damron 2, nw ne nw 22-6n-6e	144	3662
W. B. Pine, Williams 5, ne nw ne 22-6n-6e	¶2	2348
Malernee, Flowers 4, sw sw se 29-7n-6e (otd 2921)	40	2947
J. F. Smith, Huddleston 2, ne ne nw 32-7n-6e (otd 2936)	80	2940
W. C. McBride, Boy Scouts of America 1, se se se 7-9n-7e	167	3491
Sinclair Prairie, P. E. Baker 1, ne se se 29-10n-8e	365	4288
STEPHENS COUNTY—		
Geo. L. Pace, Pitts 4, nw ne ne se 3-2s-8w	10	1558
Carl Carter, Warden "A" 1, ne sw ne 34-1s-5w	¶1	908
TULSA COUNTY—		
W. Epler, Childers 1, nw sw sw se 8-18n-14e	¶4	942
Trowbridge & Moore, Childers 2, ne nw sw 8-18n-14e	¶7	962

*Failures; †Junked; ¶Million cu. ft. gas.

KANSAS FIELDS

New pool is opened in Ellsworth County.

* * *

Orth pool in Rice County extending north.

Wichita.—Drilling activity in Kansas remained quiet last week with one new pool reported and another getting an extension. A recently opened pool in Barton County was beginning to gain shape.

Definite opening of a new oil pool for Ellsworth County was recorded at Cities Service Oil Company et al's Schroeder-Community 1, CNL NW 29-17s-9w, 3 miles southwest of the South Lorraine pool. The well filled 1800 feet with oil in the first 4 hours and 3150 feet with oil in 10 hours from 3210 feet, in Siliceous lime topped at 3205 feet.

North extension of the Orth pool of Rice County appears likely with more than 1000 feet of oil in the hole at W. E. Witt et al's Rieff 1, NWc NE 22-18s-10w, a half mile north of the pool. The well was at a total depth of 3271 feet in Siliceous lime, topped at 3270 feet. Operators were reaming at 3110 feet to shut off a caving hole in Kansas City-Lansing lime.

The North Beaver pool of Barton County, a 1937 discovery, is already assuming shape, with Darby Petroleum Company's Casey 1, NE SE SE 4-16s-12w, northwest diagonal offset to the discovery producer looking like a dry hole. After finding a small show of oil in conglomerate at 3331 feet, topped at 3321 feet, the well drilled ahead to find Siliceous lime dry from 3366 feet to the latest reported drilling depth of 3371 feet. It was drilling.

A production test was scheduled for Paul Martin et al's Kultgen 1, SEc NE 17-16s-12w, one-half mile west of production in the Beaver pool of Barton County, which had 2600 feet of oil in the hole, coming from both Lansing lime and Gorham sand. Bottomed at 3342 feet, the well found production from two breaks in the lime, the first between 3199 and 3217 feet, and the second between 3268 and 3284 feet. Both levels in the lime were acidized, the first with 3000 gallons and the second with 2000 gallons. Operators were waiting on acid reaction.

Finding a core from the Kansas City-Lansing lime to contain saturation, Atlantic Refining Company was preparing to deepen Lyons 1, CEL NE 28-24s-13w, southwest of production in the St. John pool of Stafford County. A test of the Siliceous lime may be made.

South of the Zenith pool, Stanolind Oil & Gas Company's McComb 1, NEc NW 26-24s-11w, drilled to 3810 feet in Misener sand, where it was completed for an official potential of 572 barrels of oil. It extends the pool a half mile south.

In the Kraft area of Barton County, Carter Oil Company completed Stueder 1, SEc 10-17s-11w, for a potential of 1807 barrels of oil. It was producing from between 3325 and 3335 feet in Siliceous lime.

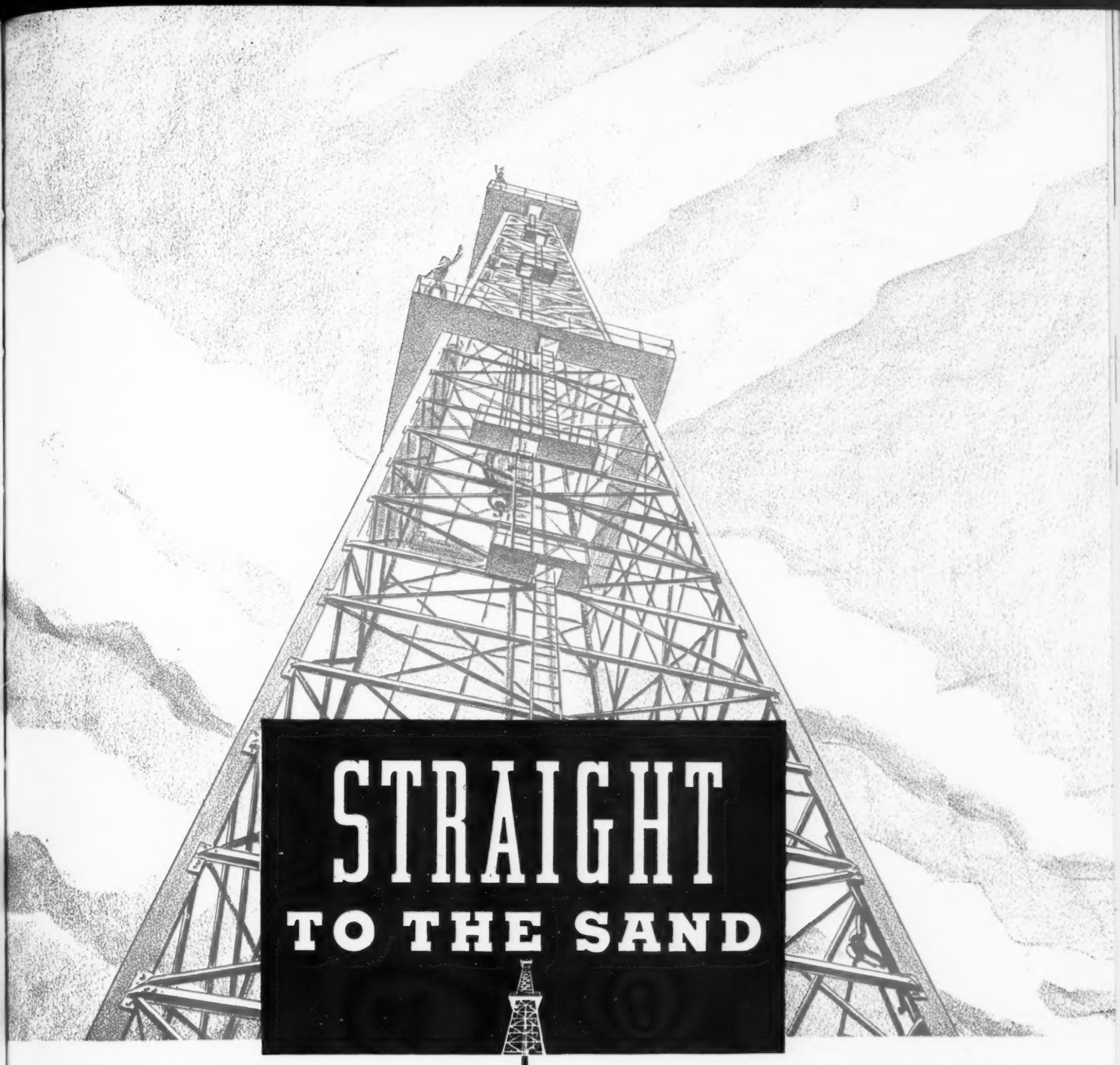
McPherson A.P.I. Chapter meets February 3

A meeting of the McPherson, Kansas, Chapter of the American Petroleum Institute will be held on February 3, 1938, at 7:30 p.m., in the Community Building at McPherson.

D. O. Barrett, Engineer for Gulf Oil Corporation at Chase, Kansas, will discuss and illustrate methods of installing and operating many types of oil field equipment. There will be several exhibits of oil field equipment shown. This will not be a technical program, but is intended to be of particular interest to oil field workers, as well as general interest to everyone.

Refreshments will be served, and there will be an attendance prize given away at the close of the meeting.

A cordial invitation is extended to everyone.



STRAIGHT TO THE SAND

The only way to be sure of drilling ***straight*** down to the bottom is by ***knowing*** that the hole is ***straight*** at every foot. Drill bits follow the line of least resistance and are always ready to go off on a tangent for geologic or mechanical causes. ***Knowing*** the exact depth where this happens may save many feet of useless drilling together with the cost of casing, cementing and other expenses for a wandering hole. An uncharted well may bottom out of lease or in unproductive sand. Lane-Wells Surveys under Alexander Anderson patents make drilling ***visible*** all the way. They cover every condition and are always exact. They have protected and directed fourteen million feet of hole, saving millions of dollars by cutting out guess-work. Four types of surveys meet every requirement—in old wells or drilling wells—in cased or open holes.

To make full use of these surveys, Lewis Knuckle Joints and Kinsbach Whipstocks are offered for straightening crooked holes, side-tracking junk or directing the hole to any predetermined point underground. With these aids the entire job is kept under scientific and intelligent ***control*** at a cost that is a mere fraction of the time and money saved. Lane-Wells surveys mean straight drilling.

Lane-Wells Gun Perforator Service — Accepted in every oil field as the standard method of increasing production and saving wells from abandonment. Operated by trained crews. Used by prominent operators and proved effective by over 10,000 wells gun perforated.

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Lane-Wells Packers and Liner Hangers — Packers that are absolutely dependable. Withstand maximum pressures. Packers have been set in wells for four years without vulcanizing to the casing. Easily set and easily removed. Lane-Wells Liner Hangers keep lines straight.

To electric core North Dakota test

Minot, N. D.—An electric logging test of Standard Oil Company of California's 6750-foot hole on the Nels Kamp farm, Williams County, was to be made late last week, after which the wildcat will be cased and cemented. Drilling of the well, which is the first deep test in the history of the state, will then be resumed and continued as long as the water supply holds out. If there is not sufficient water to carry on operations, drilling will be suspended until about March 15.

Tulsa.—Tulsa section, American Institute of Electrical Engineers, January 24, heard J. C. Sterling, Stanolind Pipe Line Company, talk on "Relation of Pipe Line Currents to Corrosion," with discussion headed by W. B. Denton, corrosion engineer with Phillips Petroleum Company, Bartlesville. "Cathodic Protection of Pipe Lines," was presented by D. B. Good, Texas Empire Pipe Line Company. Discussion was led by W. E. Huddleston, Cities Service Oil Company.

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA 1st FOUNDED 1895

In Tulsa

STATEMENT OF CONDITION

December 31, 1937

RESOURCES

Cash and Due from Banks	$21,902,699.57
U. S. Government Securities (Carried at Par or Lower)	7,934,828.46
Municipal Securities	1,294,091.57
Other Securities	622.03
Loans and Discounts	**20,280,167.99**
Overdrafts	262.88
Other Real Estate	106,430.00
Federal Reserve Bank Stock	105,000.00
Income Receivable Accrued	81,992.95
Bank Premises and Fixtures	1,363,546.33
Total Resources	$53,069,681.78

LIABILITIES

Deposits	$49,121,895.66
Income Collected Not Earned	87,426.34
Capital	2,000,000.00
Surplus	1,500,000.00
Undivided Profits and Reserves	360,359.78
Total Liabilities	$53,069,681.78

FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

Member Federal Deposit Insurance Corporation

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARBER COUNTY—		
James A. Davis, Williams 1, se se nw 30-31s-11w	429	4299
BARTON COUNTY—		
Elmer Ash et al, Trees 1, nw nw nw 34-16s-11w	*	3444
Palmer, Polcyn 1, ne ne sw 4-16s-12w	1315	3338
Polk & Fortson, Jarus 1, sw sw ne 16-16s-12w	402	3343
Cities Service, Bitter "B" 2, cw½ se 8-16s-13w	1007	3389
T. C. Johnson, Bitter 4, se se nw 8-16s-13w	1024	3389
Phillips, Krautwurst 1, se sw sw 11-17e-11w	*	3616
BUTLER COUNTY—		
Schwartz et al, Moore 1, sw sw nw 32-24s-4e	*	1080
Coranodo, Dunne 1, ne ne se 22-26s-7e	12	2762
Nat'l Ref. Co., McCallough 4, sw sw se 1-28s-6e	270	3197
COWLEY COUNTY—		
E. B. Shawver, Brewer 3, sw sw se 5-34s-3e	278	3318
ELLIS COUNTY—		
Cities Service, Bemis 14, sw nw se 21-11s-19w	2093	3382
Republic, Bemis 1, se sw sw 21-11s-17w	6520	3473
Shell, Rumsey 2, sw nw nw 23-11s-17w	2030	3418
Cities Service, Hall "B" 4, ne nw nw 26-11s-17w	2528	3423
General Machine & Tool Co., Jensen 1, sw se ne 26-12s-18w	*	3711
C. L. Caplock, Heyle 1, se se nw 14-13s-16w	*	3440
GREENWOOD COUNTY—		
Sheedy, Green 11, ne se ne 11-23s-9e	15	2403
McPHERSON COUNTY—		
Boyle & Grossman, Diener 1, se se ne 35-19s-1w	*	3495
Rosespring Drlg. Co., Carlson 1, se se nw 24-19s-3w	64	3009
PRATT COUNTY—		
Skelly et al, F. Lunt 1, center sw¼ 18-28s-11w	¶68	4338
RENO COUNTY—		
Salt City Gas Co., Haines 1, c nw se se 33-12s-5w (pb 3455)	¶2.5	3549
RICE COUNTY—		
Continental, Connery "A" 1, ne ne ne 1-19s-8w	962	3258
Bishop Oil, Reese 1, ne ne nw 22-19s-9w	1283	2931
Mid-Plains Pet. Co., Snyder 3, nw sw se 9-21s-7w	289	3378
Hauschild 3, ne sw se 10-21s-7w	631	3379
ROOKS COUNTY—		
Phillips Pet., Westhueson 1, se se ne 11-9s-17w	28	3303
RUSSELL COUNTY—		
Stanolind, Bronson 33, se sw se 20-11s-15w (pb 3188)	9	3323
Brunson et al, Gaynor 1, se se nw 19-13s-14w	1587	3197
R. H. Shield, Rogg 1, nw nw sw 28-14s-13w	1635	2922
Stearn et al, L. Miller 7, sw ne nw 31-14s-13w	1745	3112
Phillips, B. Amelia 2, nw nw sw 6-14s-14w	1711	2771
Philhan et al, Reinhardt 1, se se sw 19-14s-14w	933	3246
Central Pet., Foster "B" 9, sw nw ne 3-14s-15w	1449	3318
Transwestern, H. Polcyn 8, sw se se 10-14s-15w (pb 3079)	616	3511
Cramm 1, nw sw se 11-14s-15w	432	3258
Cities Service, Tittle "B" 1, nw nw se 14-15s-14w	*	3358
STAFFORD COUNTY—		
Stanolind, Wm. Spangenburg 4, sw nw nw 29-22s-11w	1085	3623
Komahek 15, se sw ne 30-22s-11w	686	3596
STEVENS COUNTY—		
Panhandle Eastern, Spikes 1, w½ w½ w½ nw 20-31s-38w	¶11	2655
Benedum & Trees, Morris 1, cnw¼ 33-34s-38w	¶3	2842
SUMNER COUNTY—		
W. M. McNabb, Blair 1, sw sw sw 7-30s-1e	386	3869
Stalbar, Erker 10, cw½ w½ sw 33-31s-1w	1066	3684
WOODSON COUNTY—		
Aikeman et al, Massy 4, ne nw ne se 35-23s-14e	5	1655
Young, Stevenson 2, nw nw sw ne 5-24s-14e (pb 1740)	10	1747

*Failures; †Junked; ¶Million cu. ft. gas.

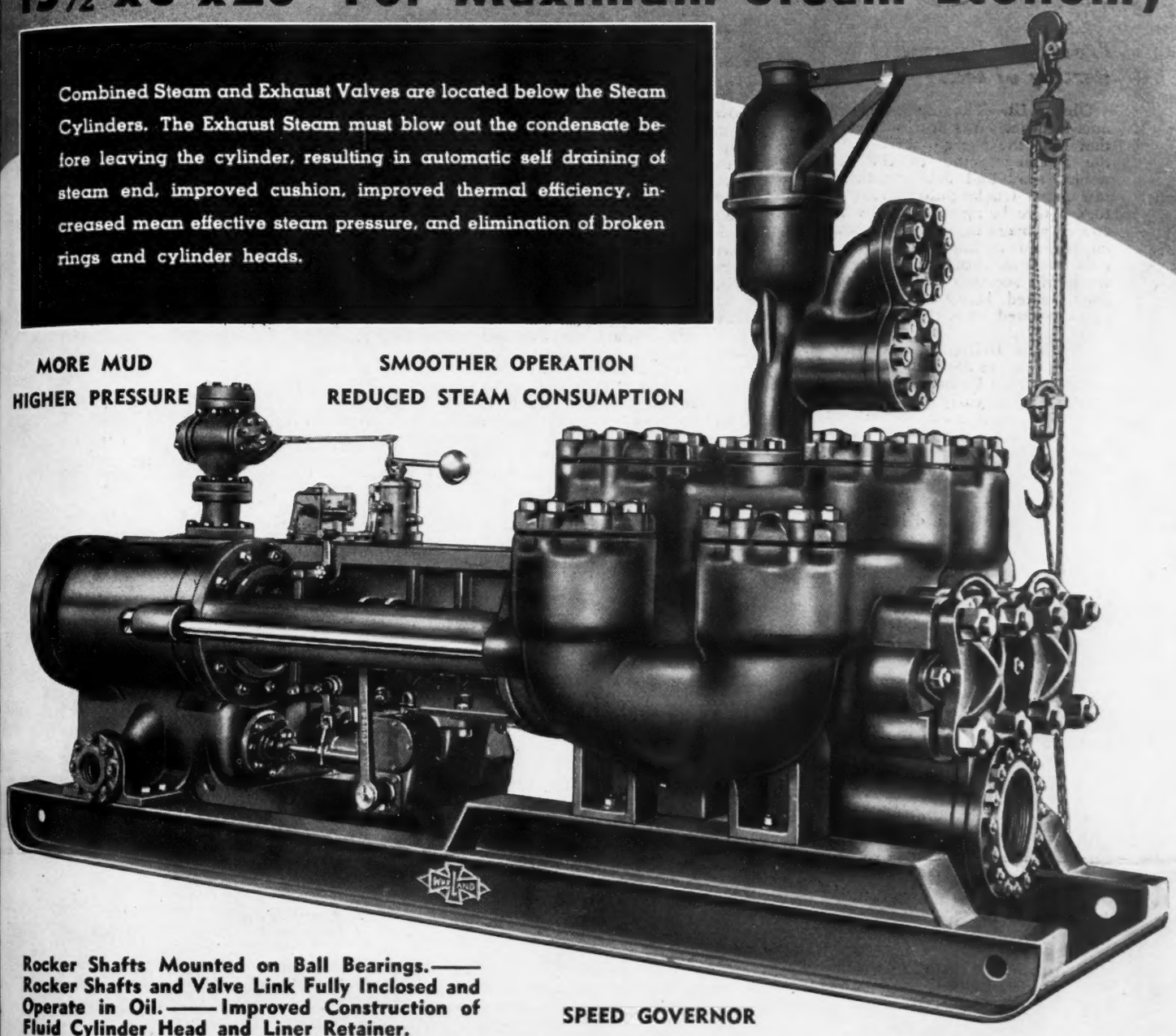
WHELAND-LUCEY H-20000 STEAM SLUSH PUMP

15½"x8"x20" For Maximum Steam Economy

Combined Steam and Exhaust Valves are located below the Steam Cylinders. The Exhaust Steam must blow out the condensate before leaving the cylinder, resulting in automatic self draining of steam end, improved cushion, improved thermal efficiency, increased mean effective steam pressure, and elimination of broken rings and cylinder heads.

MORE MUD
HIGHER PRESSURE

SMOOTHER OPERATION
REDUCED STEAM CONSUMPTION



Rocker Shafts Mounted on Ball Bearings.——Rocker Shafts and Valve Link Fully Inclosed and Operate in Oil.——Improved Construction of Fluid Cylinder Head and Liner Retainer.

All Liner Adjusting Screws are on the outside of Cylinder, no screw or threads are in the mud stream. Cylinder head packed by independent gland.

DISTRIBUTORS:
Lucey Products Corporation, Tulsa, Oklahoma.
Houston Oil Field Material Co., Inc., Houston, Texas.
Murray-Brooks Hardware Co., Ltd., Lake Charles, Louisiana.
Frick-Reid Supply Corporation, Tulsa, Oklahoma.

SPEED GOVERNOR

The Automatic Governor and Balanced Regulating Valve is highly recommended to the operator and is offered as optional equipment. This Governor and Regulating Valve prevents excessive speed of the pump regardless of the steam or mud pressure, but does not prevent the pump from producing maximum mud pressure when running at, or below normal speed. The pump is stopped and started by the customary throttle valve which is entirely independent of the governor valve.

EXPORT: Lucey Export Corporation, 3505 Woolworth Bldg., New York, N.Y.
Broad Street House, London, E. C. 2, England.

THE WHELAND COMPANY

ROTARY DRILLING EQUIPMENT

Chattanooga, Tenn.

ILLINOIS DEVELOPMENTS

Frozen mud permits starting of tests

Olney, Ill.—The big interest in Illinois last week was northwesterly winds that sent the thermometer well below the freezing point. In the past few weeks, road and field conditions that saw many trucks pulled apart by tractors before being released by the mud and clay made movement of equipment impractical if not impossible. If the cold weather holds out, the coming week will see two dozen or more new tests started. Many of them will offset areas opened or extended during the past month.

Bur Kan Drilling Company's R. C. Allen 1, Section 26-4n-10e, Olney Township, Richland County, was flowing 300 barrels a day early last week from a McClosky saturation at 3034-39 feet. A pipe line to the Heitz field, Noble Township, gathering system of the Owensboro Corporation was being rushed, with completion expected late in the week. Successful completion of the test guarantees a drilling campaign that will include a part of the city, giving it an appearance not unlike that of Noble, where more than three dozen derricks have been erected in the town-lot play. A large part of the city and the area north of it was in the midst of a wild leasing and royalty-buying campaign last week, and a number of drilling commitments were made in and near the city limits. Gulf Refining Company announced the first location as a result of the Allen strike for the G. W. Hill tract, Section 2-4n-10e, Preston Township. It will be started immediately now that equipment can be moved. Frost et al's Farris 1, Section 18-3n-10e, was completed a month ago as Olney Township's discovery. Midway between the two wells, Papoose Oil Company's Edith Lynch 1, Section 5-3n-10e, was drilling below 2700 feet, and preparing to start coring for the McClosky.

The value of The Texas Company's Wayne County pool opener—Silverman 1, Section 16-3s-7e, Big Mound Township—was more definitely established last week. After the well had been flowing for some time following acid treatment, it was shut in, and when reopened it flowed 56 barrels the first hour, 45 barrels the second hour, 33 barrels the third hour, 33 barrels the fourth hour, 24 barrels the fifth hour, and 19 barrels the sixth hour. Production remained at about the 19-barrel an hour level from there on. The wildcat is the company's first Illinois coal basin venture and is on 6000 acres the company has under lease.

Irwin 1, Section 12-2n-7e, Stanford Township, wildcat territory of Clay County, was pumping 300 barrels a day last week following acid treatment. Operators plan additional treatment, believing production can be increased. There was a small show of water when the well was drilled in at 3066 feet, but it has disappeared since acidization. Owners of the test are Olson Drilling Company, Robey Drilling Company and Wiser Oil Company.

In Effingham County, Hollis et al's Haarmann 1, Section 32-8n-6e, Douglas Township, apparently will fail to redeem hopes for large-scale production from the St. Louis lime. Cable tools moved in last week to drill out a 30-foot concrete plug placed when favorable indications of saturation appeared on cuttings. It was cleaned to the bottom of the 2670-foot hole and only a slight showing of oil appeared. When deepened 2½ feet in the lime, a small quantity of oil appeared on the bailer. Operators plan to drill about 75 feet deeper with cable tools if the present structure does not give commercial production. The McClosky was barren.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Pure, B. Travis "B" 1	760	2985
MADISON COUNTY—		
T. C. Havelka, Havelka 1	*	1987
MARION COUNTY—		
Adams O&G Co., Merryman 18	46	1441
Lambert & Evans, Cahill 2	19	1457
Alexander et al, Pope 1	*	1494
Schriver et al, Schreurer 1	*	1900
RICHLAND COUNTY—		
Pure, Montgomery 1	634	3000
Burr 1	66	2995
Coen 5	527	2993
DeKalb Oil Co., Flora Home 1	483	2955

*Failures; †Junked; ¶Million cu. ft. gas.

EASTERN FIELDS

Two large West Virginia gas wells

Pittsburgh.—Godfrey L. Cabot, Inc., brought in Myrna & Homer Jarrett 1, 3 miles north of the Sissonville-Grapevine area, Poca District, Kanawha County, for the largest West Virginia gasser to be completed in over a year. The gauge was 24,000,000 cubic feet and the test was bottomed at 4880 feet in the Oriskany.

Twenty-five miles to the southwest, a gasser having an open flow of 23,000,000 cubic feet a day was brought in on the George Akers tract, just south of Kermit, Mingo County, West Virginia. Production is from the shale at 2950 feet and the well was drilled by a syndicate comprised of Akers, W. E. Burchett, George Hale, B. W. Thornton, Dewey Preece, Elmer Castle, and E. C. Ware. United Fuel Gas Company will take the gas.

In the northern part of the Eastern Fields region, Becker & Williams' McKean County, Pennsylvania, gasser commands interest. Gauging 6,000,000 cubic feet a day from the Sliverville sand, it is the largest gasser ever drilled in that county and the largest in Northern Pennsylvania or Southern New York that is not producing from the Oriskany or Medina sands. It is bottomed in the same sand from which Niagara Oil Corporation obtained the first "gusher" in 15 years about 5 months ago and is approximately 4500 feet southwest of that well. The Sliverville was topped at 1697 feet and the well completed 4 feet in.

Two months after the Niagara company's strike, Minard Run Oil Company completed the second gusher in

EASTERN STATES
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
BELMONT COUNTY—		
Natural Gas Co., W. Va., McMasters 2	¶.19	1500
KNOX COUNTY—		
East Ohio Gas Co., Taylor	¶.48	755
LICKING COUNTY—		
McClay Bros., Orr 2	¶.15	....
M. F. Whitehill, Beatty Hrs.	*	3046
LORAIN COUNTY—		
Wm. Dempsey, Leonard 1	*	2400
MEDINA COUNTY—		
E. R. Edson & Son, Kraemer 1	*	2890
MORGAN COUNTY—		
North et al, Croy 36	4	472
C. P. Bowman, Woodyard 3	¶.08	1555
MUSKINGUM COUNTY—		
Preston Oil Co., Lilienthal 1	4	4145
Lantz & Meade, Baughman 5	*	760
NOBLE COUNTY—		
Mud Run O&G Co., Bond 2	¶.03	1650
PERRY COUNTY—		
Preston O&G Co., Sunday Creek 161	25	3675
Weaver & Denman, Weaver 2	¶.26	1055
Thistle Oil Co., Drake 29	*	1061
STARK COUNTY—		
East Ohio Gas Co., Kimbark 1	¶.15	4400
WASHINGTON COUNTY—		
Hamilton et al, Ridgeway 8	¶.08	1400
KENTUCKY		
BRECKENRIDGE COUNTY—		
Bryan & Patton, Patton 2	*	400
DAVIESS COUNTY—		
Gibson et al, Howard 1	¶.20	1092
HANCOCK COUNTY—		
W. E. Hupp, Fuqua 2	10	....
Galey & Fletcher, Holder 1	*	1910
Walker et al, Boling 5	*	405
LEE COUNTY—		
Petroleum Explor. Co., Crabtree	10	1130
McLEAN COUNTY—		
Cox et al, Bennett	15	1292
OHIO COUNTY—		
Moss Oil Co., Smith 3	8	621
Carrell & Kontz, Barlett 6	*	466
Nollem O&G Co., Lloyd 3	*	655
POWELL COUNTY—		
South Penn Oil Co., Lowry 2	3	....
WEST VIRGINIA		
BOONE COUNTY—		
Pure, Federal Coal 78	¶1.11	3145
BRAXTON COUNTY—		
Pittsburgh & W. Va. Gas Co., Hall 7635	¶.45	2571
CALHOUN COUNTY—		
O. D. Jones, Parsons	10	2280
GILMER COUNTY—		
G. Tompkins, J. C. Collins 6	1	2800
C. F. Wilson, L. D. Edwards 1	¶.06	1545
L. Wohine, Hoskins & Fitzpatrick 1	*	1642
KANAWHA COUNTY—		
Godfrey L. Cabot, Inc., Jarrett 1	¶24.00	4880
United F. G. Co., Ray 4762	¶7.70	4811
Columbian Carbon Co., Cavender 1	¶4.87	5022
B. F. Jones	¶3.10	4995
Pure, Slaughters Creek 7	¶.88	2981
LINCOLN COUNTY—		
Empire State Gas Co., Bias 1	¶.07	3237
MARION COUNTY—		
Carnegie Nat. Gas Co., Caseman 2	¶.50	2350
MONONGALIA COUNTY—		
Pittsburgh & W. Va. Gas Co., Core 1	¶.05	3160
NICHOLAS COUNTY—		
Hope Nat. Gas Co., C&H Corp. 7777	¶.85	2505
RITCHIE COUNTY—		
Hill & Kuhn Oil Co., Kerns 2	3	1728
B. & B. Oil Co., Washburn 1	2	1868
ROANE COUNTY—		
Hildreth & McGlothlin, Simmons 1	*	1990
TYLER COUNTY—		
J. H. Beren, Shanahorn 1	¶.05	1772
PENNSYLVANIA		
ALLEGHENY COUNTY—		
Updegraff et al, Warbloc 1	¶	....
C. B. Wachter, Hoffman 1	¶	....
GREENE COUNTY—		
Mong et al, Johns 2	*	3285

*Failures; †Junked; ¶Million cu. ft. gas.

KINZBACH Makes SIDETRACKING Easy!

With this well known

WHIPSTOCK-MILL COMBINATION

The KINZBACH WHIPSTOCK is your insurance for a satisfactory mill-out job. It can be set at any desired depth, requiring no support from bottom. The hinged feature assures its reclining against the pipe wall. By setting in a coupling, **the window is always confined within one casing joint, removing all chance of milling through a coupling and parting the casing string.** Positive setting of slips prevents any turning or downward movement. This whipstock can be oriented in the hole to mill out in any desired direction. It is removable from the hole, if desired. It **assures** a full, clean window, leaving no obstructions for follow-up drilling.

The KINZBACH MILL **assures** a clean, consistent window. Spiral setting of the milling tool blades gives a uniform depth of cut, minimizing danger of drill pipe twist-off. Proper heat treating of the high speed tool steel blades permits grinding to the correct angles for the smoothest, most efficient cutting action. Kinzbach Mills readily cut the new alloy casing and pipe. They pay for themselves in the round trips they save. The round nose type, shown here, and numerous other types are always in stock. Special mills are made for special jobs.

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KINZBACH TOOL CO. INC.

HOUSTON, TEXAS

LANE-WELLS CO.

CALIFORNIA REPRESENTATIVE

this formation, and the Niagara company completed a partner for its discovery on December 13. Just what effect the gasser may have on these 3 producers is the concern of the Niagara and Minard Run companies. It is feared that the Becker & Williams well will take the gas pressure from the formation and reduce the flowing wells to the status of average Pennsylvania pumpers.

The wells are outside the recognized limits of the Bradford field, being about 9 miles south of Bradford and 4 miles west of Lewis Run. Becker, who has gas production in the New York-Pennsylvania Oriskany gas area, including a 20,000,000 cubic foot well in the new Woodhull Township field of Steuben County, New York, is negotiating with municipal authorities at Jamestown, New York, for sale of the gas to a proposed municipal plant. Meanwhile, the McKean County gasser is shut in.

In Sullivan County, Western Indiana, Carter Oil Company is preparing to start operations on the Dr. S. E. Lindley farm, a short distance northwest of Graysville. The company, which has been doing considerable exploratory work in Western Indiana and holds a large block of leases in Sullivan County, will use a rotary rig.

After encountering salt water in the second break in the Niagara limestone at 2256 feet, Worthington Petroleum Corporation abandoned its John Ford Estate 1 wildcat, Section 4-5n-7w, Vigo Township, Knox County, Indiana.

A BEAR FOR WEAR
SAVE WIRE LINES AND SAVE MONEY
The Grizzly "No-Wip" Line Saver will pay big dividends by reducing wire line wear to minimum—saving miles of valuable wire lines every year. Also reduces the extreme hazard of worn lines. Simplifies spooling; prevents whipping or piling on drum; floats with the line. A thoroughly engineered device, well built of the finest materials. Can be suspended at any point in the derrick. See it at your supply houses.
Not a rigidly controlled guide—it takes out the whip without straightening or injuring the line.
E. M. SMITH COMPANY
600-650 South Clarence Street, Los Angeles, California, U. S. A.
Complete Stocks Maintained in Our Warehouses At: 2311 West Street, Houston, Texas. 1008 S.E. 29th Street, Oklahoma City, Oklahoma. Export Office: Continental Emsco Co., 30 Rockefeller Plaza, New York City. DISTRIBUTED BY LEADING SUPPLY COMPANIES.
GRIZZLY No Wip LINE SAVER

WEST TEXAS FIELDS

Cavings delay Pecos Ordovician completion

Midland, Texas.—Completion of the first oil producer from the Ordovician horizon in Pecos County has been delayed by cavings shutting of the flow from Magnolia Petroleum Company and Tex-Mex Petroleum Corporation's McKee 1-A from Simpson at 5294 feet.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Fuhrman)—		
Landreth Prod. Corp., L. Jones 3	632	4487
ANDREWS COUNTY (Means)—		
Humble, J. S. Means 35	1015	4524
R. M. Means 15-A	871	4556
CRANE COUNTY (McCamey)—		
Pitzer & West, Cordova Union 1	226	2125
J. M. Rush-Rushwold Oil Co., Gibbs-Conoco 4	990	2298
CRANE COUNTY (Wildcat)—		
J. W. Hampton et al, N. S. Thaxton 1	*	2235
ECTOR COUNTY (Foster)—		
Barnsdall, F. Foster 7, sec 13	1280	4160
ECTOR COUNTY (Goldsmith)—		
Humble, C. Scharbauer 7-C	286	4194
Shell, C. Scharbauer 2-A	609	4217
T. P. Coal & Oil Co., C. Scharbauer 14	2208	4260
ECTOR COUNTY (Harper)—		
Broderick & Calvert, J. E. Parker 1	999	4260
Shell, E. F. Cowden 3-B	383	4294
E. F. Cowden 5-B	378	4298
ECTOR COUNTY (Jordan)—		
Texas Co., McDonald 1	2000	3669
ECTOR COUNTY (North Cowden)—		
Sun, Holt 3-C	392	4351
FISHER COUNTY (Rotan)—		
Sunray Oil Co., Robinson 7	421	3872
GAINES COUNTY (Wasson)—		
Phillips, I.T.I.O. Co., T. S. Riley 1	*	4959
GARZA COUNTY—		
M. L. Richards et al, J. B. Slaughter 1	*	3521
HOWARD COUNTY—		
MacDermott et al, S. B. Capps-Anderson 1	*	3101
JONES COUNTY—		
Iron Mountain Oil Co.-Humble, Jones-Stasney 3	3840	3200
Maracaibo Oil Explo. Co.-W. L. Pickens, W. T. Roberts 1	*	2243
LOVING COUNTY (Wheat)—		
West Texas Pet. Corp., J. G. Allen 4-B	101	4320
PECOS COUNTY (Toborg)—		
Cardinal Oil Co., Tippett-Stanolind 4-K	6	370
PECOS COUNTY (Netterville)—		
L. B. Hoss-F. J. Downey, H. Cordez-Empire 1	171	2044
PECOS COUNTY (Yates)—		
Gulf, M. A. Smith 28-A	79	1828
PECOS COUNTY (Wildcat)—		
E. P. Cravens et al, J. C. Trees 1	*	2273
UPTON COUNTY (Gulf-McElroy)—		
Gulf, Crier-McElroy 27	449	3010
UPTON COUNTY (McCamey)—		
Cardinal Oil Co., E. Wooley-Shell 7	105	2189
E. Wooley-Shell 8	111	2170
Continental, A. A. Reese 17	182	2475
Peerless Oil Corp., T. E. Shirley-Conoco 4	280	2192
Pure, E. S. Hughes 8	510	2606
T. P. Coal & Oil Co., J. F. Lane 30-A	560	2132
WARD COUNTY—		
Humble, L. Richter 28	751	2615
T. P. Coal & Oil Co., M. Barker 13	315	2407
WINKLER COUNTY (Halley)—		
Skelly, Halley 25	1520	2891
WINKLER COUNTY (Kermit)—		
Humble, N. R. Colby 25-A	876	3086
WINKLER COUNTY (Keystone)—		
Falcon Co., McCutcheon-Humble 9	244	3442
YOAKUM COUNTY (Bennett)—		
Honolulu Oil Corp., R. E. Bennett 2	793	5247
YOAKUM COUNTY (Wasson)—		
Denver P&R Co., Whittenburg Est. 2-A	461	5070

*Failures; †Junked; ¶Million cu. ft. gas.

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This wildcat kicked off after swabbing through tubing and flowed in pits for 45 minutes. The flow was diverted to separator and the hole sanded up in 5 minutes. Gas volume was estimated at 1,000,000 feet daily. No estimate was made of the oil yield as the well was making a large percentage of wash water when the flow ceased. Samples of the oil indicated 43 gravity. A liner was due to be run below the 9-inch casing seat at 5192 feet late last week to resume testing through tubing.

Preliminary showing by the McKee prospect forecasts the development of a third Ordovician oil area for the Permian Basin.

Five-inch pipe is being run for a production test on Stanley Thompson et al's Elsinore 1, southwestern Pecos County wildcat, which is showing oil and gas at 7128 feet. First gas was noted in core at 7065-73 feet.

Gulf Oil Corporation's McKnight 3, about ¾-mile northeast of Ordovician production in the sand hills field, Crane County, was slated to be abandoned late last week at 6278 feet. This outpost previously flowed sulphur water from Ellenberger lime, topped at 6164 feet. This company's Waddell et al 7, south offset to a big oil producer in the Ellenberger, was drilling at 2965 feet.

Linking of the Jordan and Waddell fields, northern Crane County, materialized when Gulf Oil Corporation's Henderson 11, SE SE NW PSL Section 4, Block 23, flowed 143 barrels of oil in 3 hours after drilling 1 foot into lime pay topped at 3527 feet, with an elevation of 2783 feet. Tankage and separator were being installed late last week to deepen. It is ¾-mile southeast of production in the Jordan area, and 1¼ miles northwest of nearest production in the Waddell field. Gulf Oil Corporation holds lease on the bulk of the acreage proved by the outpost.

NORTH TEXAS FIELDS

K-M-A lease trading slowing up.

* * *

Northwest extension test looking good.

Wichita Falls.—Lease trading portion of the K-M-A boom is on the wane after remaining in high gear for 2 months, but is subject to moderate revivals in the event outposts and wildcats now underway are successful in developing production. Exploration of the vast amount of acreage proved and classed as prospective oil land will not attain its peak level for several months.

Field activity has gained steadily since early November. Currently there are 106 Strawn completions, and 139 additional operations, exclusive of scores of "paper" locations. Drilling report for the field reveals 31 tests in process of completion, else awaiting machines to drill in; 39 tests drilling below surface pipe; 13 tests awaiting rotary or rigging up after cementing surface pipe; 17 derricks and rigs; 38 active locations; and one idle test.

Showdown on the ability of Geir Brothers, Inc. and F. B. Jackson's Ancell 1, southwest outpost, to produce from structurally low section of the Strawn at 3990 feet was in progress late last week. Title difficulties on acreage within the block assembled by the partnership caused several delays in drilling cement plugs from 7-inch pipe at 3950 feet.

Joe A. Worsham et al's Waggoner Bros. 1, SEc BS&F Section 13, A-394, about 1¾ miles northwest of nearest production, stood with hole full of oil late last week at 3870 feet while awaiting nitro shot. This outpost was reported last week as filling 2000 feet with oil after drilling plugs at 3808 feet, and flowed by heads when deepened. Top of lime was logged at 3588 feet, with an elevation of 1134 feet. Rathke Oil Company et al's T. L. Burnett-Gulf 1-A, near C NE NE H&TB Section 4, A-572, 3¼ miles northwest of the above producer and on the Electra arch, cemented 7-inch in big lime at 3550 feet, with an elevation of 1137 feet. Machine is being installed to drill the entire Strawn section with tools.

Danger of missing a prolific oil zone in the Strawn section was emphasized the past week when Deep Oil Development Company's Munger 15, SWc lot 21, block 25, about third mile southwest of the discovery producer, flowed 1200 barrels oil in 14½ hours from sandy-lime at 3660-3665 feet. Top of lime was logged at 3654 feet, or 2643 feet sub-sea, and pipe cemented at 3659 feet. Ordinarily operators cement pipe considerable distance in the lime, and if this policy had been followed the above test would have missed the prolific upper way. Munger 15 is ¾-mile southeast of R. & G. Drilling Company and J. T. Harrell's Munger 1, failure listed last week at 3890 feet.

The Texas Company's First National Company 23, SEc lot 8, block 26, north portion of the older section of the field, used 2000 gallons of acid in sandy-lime at 3632-61 feet, and swabbed 65 barrels oil in 5 hours after recovering acid load. Hole was ordered deepened, and machine was drilling at 3674 feet. The company's west offset was drilling at 3160 feet. Mrs. Hulda B. Wallace et al's G. W. Lewis 1, NEc block 20, east outpost for the Kadane sand area, missed the sand section in drilling sandy-lime at 3686-3967 feet, and has plugged back with hole full of oil to shoot with 330 quarts of nitro. J. I. Staley Oil Company's McFall 1, H. B. Balch Survey, A-12, situated near northeast edge of production, is showing for a 150-barrel pumper after nitro shot. Hole was plugged back from 4000 feet to 3903 feet. Erroneous reports listed the latter as a failure.

Toddie L. Wynne, trustee's Waggon-

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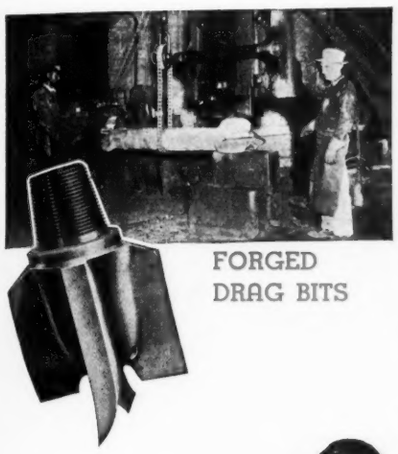

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EXPORT OFFICE: Acme Well Supply Company, 136 Liberty Street, New York City

er Bros. 1, which has been in process of completion for several weeks, flowed 525 barrels initial after conditioning hole from nitro shot at 3865-85 feet. South offset is being started by George Greer et al on the Mitchell 105½-acre lease farmed out by Gulf Oil Corporation for an over-riding royalty until property is fully developed and amortized by production then the latter is to have a 50-50 interest. More than a score of concerns sought this farmout. Golding and Cochran, operators, will supervise the development of the Mitchell tract. Toddie L. Wynne, trustee's Mitchell 1, lot 21, C. T. Ry. Survey, A-51, near northeast edge of production, drilled in with rotary to 3981 feet before landing pipe. Electrical formation surveying instrument credited this test with about 28 feet of oil saturated sand. Production test was due late last week. Top of lime was logged at 3793 feet, with an elevation of 1020 feet.

Completion of a second producer for Archer County section of the K-M-A deep area was realized when Wheeler Nazro et al's Ferguson 1, SEc lot 3, F. Peterswick Survey, flowed 1000 barrels natural at 3790-3867 feet. Top of lime was logged at 3718 feet, with an elevation of 1048 feet.

Canadian River bed well large producer

Borger, Texas.—Development of the Canadian River bed in Hutchinson County accounted for the first large natural producer in the Texas Panhandle in recent months. J. M. Huber Petroleum Company's State 3 gauged 1000 barrels initial from broken lime at 2660-2716 feet. It is a south offset to Skelly Oil Company and Cabot Carbon Company's I. C. Merchant 1, SWc H&TC Ry. Section 34, Block 47, which flowed 1586 barrels natural last August at 2798 feet, or 106 feet above sea level. The latter extended production 1 mile.

Gas yield from Indian Territory Illuminating Oil Company's Davis 1, C

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ASKANIA

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Butler et al, Pollei 1, blk 7	14	1128
Danson Oil Co., Benson 8-A, sec 1808	*	950
Fresno Oil Co., M. P. Andrews 1, sec 1824	*	946
Horwitz & McDaniels, Benson 7, sec 1808	75	930
Bert Ligon et al, Strange 1, sec 47, blk 5	*	985
Tom Minnich et al, Foster-Jennings 2, sec 1	*	462
CLAY COUNTY—		
Bridwell Oil Co., Edrington 8-A, sec 24	150	1122
W. H. Metzger et al, J. J. Taylor 3	125	1119
COOKE COUNTY—		
Kingery Bros. et al, Mrs. A. Johnson 2	175	1235
E. J. Ruwaldt et al Andress 3	10	848
Seitz-Comegys & Seitz, J. D. Walker 1	*	1603
Whitfield-Pearson & Grimes, W. G. Dozier 1	*	2506
JACK COUNTY—		
Hamilton Pet. Co., J. S. Rhodes 5	247	2393
Hanlon & Buchanan, Inc., T. T. Bouldin 3, sec 3	237	2720
E. M. Sampley 6	24	2970
Senter et al, J. W. Kinder 1	150	3005
MONTAGUE COUNTY—		
Arco Oil Co., Salmon 15-E	30	1608
Salmon 16-E	12	945
Texas Northern Oil Co., L. Keck 2	*	888
THROCKMORTON COUNTY—		
McDonald et al, Daws 1, sec 965	*	402
Daws 2, sec 965	*	407
WICHITA COUNTY (K-M-A)—		
Blackwell O&G Co., Hodges 2	808	3756
L. T. Burns & Long, First Nat'l Co.-Gulf 26-D, blk 26	720	3853
E. C. Oil Co., LeBus-Whitaker 1	648	3846
Haberle & Thornton, Wichita Irrigation Dist. 1 (2½-ac)	2463	3771
Manson Oil Co., Mitchell 1, blk 10	629	3944
Petroleum Producers Co., First Nat'l Co. 84, blk 28	705	3850
R. G. Drilling Co.-J. T. Harrell, Munger 1, lot 9, blk 24	*	3890
WICHITA COUNTY—		
Barton Bros. et al, Honaker 2	*	320
Burk Royalty Co., Warren 2, blk 32	*	1813
Clark et al, Bickley 42, sec 2	*	2323
DuBose et al Daws 1, sec 28	*	650
Kellar et al, Dale-Clark 1	*	902
King Oil Co., S. B. Burnett 5-B, sec 3	*	935
W. T. Waggoner Est. 5-R	40	1422
Petroleum Prod. Co., First Nat'l Co.-Bailey 2, blk 29	*	1801
Pois & Schultz, Foster 2-J, sec 2	150	1258
Foster 3-J, sec 2	90	911
Rubsam & Hunter, McClure 19-A	11	587
WILBARGER COUNTY—		
Fain-McGaha-Shell, Fluhman 10	20	2059
Falls Ref. Co., Owens 1	†	1605
Walter Little et al, Morris 1, sec 3	*	2008
Paradise Oil Co., Waggoner 1-A, sec 45	534	3030
Phillips, Shive-Webb 1, sec 79	115	2183
W. T. Wagoner Est. 200, sec 45	1500	3032
YOUNG COUNTY—		
Beavers et al, Casper-Seibold 2, sec 81	*	1216
Humphrey et al, Peters 1, sec 624	2796	3938
Wolfe et al, Castleman 1, sec 72	15	1199
Wooten & Wilson, Tidwell 1, sec 34	*	746

*Failures; †Junked; ¶Million cu. ft. gas.

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NE T&NO Section 404, Block 1-T, southwestern Sherman County wildcat, increased to 50,000,000 feet daily in deepening to 2950 feet. It is the first production strike, and affords an important northwest extension for the Panhandle gas belt. The gas is credited with being immune from sulphur, and the rock pressure is estimated at 450 pounds. Top of lime was logged at 2380 feet, with an elevation of 3599 feet, indicating a high structural position for the area. First gas was reported at 2705 feet, and increased as intervals in penetrating the big lime section. The test will likely be carried to approximately sea level depth, where water is due, to try for oil production.

TEXAS PANHANDLE
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Danciger, Block 2	256	3090
Panhandle Eastern, Sanford 1-16	¶32.3	2925
GRAY COUNTY—		
Adams & McGaha, Morse 8	167	2506
Continental, Short 1	192	3153
Gibson Oil Corp., Combs-Worley 2-A	654	3000
King Oil Co., Vallmert-North 10	374	3285
S. & M. Oil Co., Worley 1	626	3221
Texas Co., Brown 5	321	3275
HUTCHINSON COUNTY—		
Stekoll Oil Co., Dial-Perkins 9	419	2980
Texas Co., Quinn 7	480	3111
MOORE COUNTY—		
Shamrock O&G Corp., J. T. Sneed 10	¶136	2564
Shell-Sinclair Prairie, Loganecker 1	¶16.3	3324
Wilbar 1	¶14.4	3255
WHEELER COUNTY—		
Shell, Albright 1	*	2870

*Failures; †Junked; ¶Million cu. ft. gas.

EAST TEXAS

Southwest Anderson wildcat is good well.

* * *

East Texas outpost is going deeper.

Tyler, Texas.—Production gauge given H. L. Parsons and American-Liberty Oil Company's H. B. Hemby 1, southwestern Anderson County wildcat strike in process of completion for several weeks, reveals a good volume of high gravity distillate with the high pressure gas flow. The well tested 21½ barrels of distillate in 10 hours on ½-inch tubing choke, with gas flow rated at 8,150,000 feet daily from casing perforations in upper Woodbine at 5409-19 feet. Working pressure on tubing was 1400 pounds. Hole was plugged back from water at 5487 feet to 5421 feet. Location is in the John Gossett Survey, about 5 miles southwest of Elkhart.

Drilling was in progress at 8160 feet on Humble Oil & Refining Company and Gulf Oil Corporation's Robertson 1, Gregg County Trinity test on the east flank of the East Texas field, after installing heavier rig. Owners plan to drill to the lower Marine series, which has been penetrated by comparatively few tests in the Woodbine basin. Stanolind Oil & Gas Company and Ramsey Petroleum Corporation's Norris 1, Thornton fault area, Limestone County, entered the lower Marine at 7595 feet, and has been delayed by a fishing job at 8278 feet.

Tom Hunter and American Liberty Oil Company's Carter 1, lower Trinity prospect for the Kelsey dome, Upshur County, logged top of massive anhydrite at 6520 feet, with an elevation of 428 feet, and was drilling at 6630 feet.

Walter Goldston et al's Smith 10, first lower Trinity test for the Sulphur Bluff field, plugged back from 6600 feet to 4600 feet, and tested 32 barrels oil hourly through gun-perforated casing opposite Paluxy at 4500-20 feet. No oil or gas showings were logged in the lower Glen Rose, topped at 5760 feet, with an elevation of 439 feet.

Woodbine explorations are shifting back to the older producing counties in the basin. Two prospects are in store for Navarro County. Capt. L. B. Orchard and A. G. W. Biddle plan to start operations shortly on a 4000-foot Woodbine prospect on a 3000-acre block in eastern Navarro County. Location was made recently in northwest part of the Gibson tract, Isaac Bird Survey, about 4 miles south of Rural Shade. It is about 8 miles west of the Cayuga field. Previous development, including tests with minor gas showings, affords accurate subsurface geology to support the above project. Natural Petroleum Company's Karen Brown 1, W. T. Turner Survey, has rigged up to drill to the Woodbine about 2 miles east of Roane, Navarro County. J. S. Cosden, Jr. et al's J. J. Bower 1, J. Breeding Survey, is to explore a block in northwestern Limestone County near Prairie Hill.

Center, Texas.—Joe Burnham of Fort Worth has been assigned 900 acres by Ed Gregory and associates around George 1, C. C. Tutt Survey, Shelby County, three miles south of Shelbyville, to deepen the test to the Glen Rose. Total depth is now 2950 feet. The test has been shut down since last September. Besides getting this acreage Burnham also acquired 400 acres additional.

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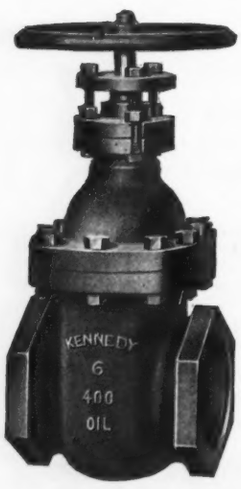

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KENNEDY

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EAST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
G. V. Allen & C. E. Davis, Alford 1 (25/100-ac)	1500	3672
Ambassador Oil Corp., London School 13 (3.33-ac)	6600	3763
Cook Drl. Co., Alford 2-C (5-ac)	250	3608
Despot et al, Deason 4 (5-ac)	2500	3710
General American, Thompson 11	7200	3787
Great Plains, Stone 6-B (23.7-ac)	7500	3655
Humble, Blackwell 62 (325.79-ac)	7300	3674
Thompson 11 (80.9-ac)	9700	3684
Jackson et al, Bateman 3 (10-ac)	3000	3786
Magnolia, Kee 7 (56.41-ac)	480	3798
Milford Oil Co., Thrash 9 (30-ac)	2400	3740
Ohio, Graham 24, Acct. 2 (134.7-ac)	6800	3663
Oklahoma-Texas Trust, Giles Bros. 3 (5-ac)	4000	3673
Sam Roosth-A. S. Genecov, Bateman 9 (38.9-ac)	960	3786
Sklar Oil Corp., Kelley 2 (10-ac)	*	3706
Termo Oil Co., Fox 14 (25.48-ac)	6800	3674
Ward Oil Corp., Thrash 36 (200-ac)	6700	3823
KILGORE AREA—		
Anding et al, Griffin 3 (4.42-ac)	3600	3532
Carroll & Thompson, Jerry & Rider 2, blk 118	960	3541
McVey et al, Brady 1, blk 137	3000	3541
Merrick et al, I&GN 1, Tr. 2 (1.6-ac)	3600	3664
Midfield Oil Co., Martin 2-a (8.4-ac)	1500	3766
Moss et al, Marshall 16 (38.93-ac)	1000	3530
Russell et al, Lacy 7 (267-ac)	1200	3453
Shell, Willoughby 16 (57.7-ac)	4000	3590
Sutton & Hawkins, Hilburn 10 (35-ac)	2500	3683
Wrather et al, Hughey 5, lot 8, blk 118	780	3548
LONGVIEW AREA—		
Arkansas F. O. Co., Lathrop 11-B (58.82-ac)	5500	3625
D. P. Dean & B. F. Phillips, Reeves 2 (20-ac)	1800	3713
General American, Adams 21 (102.65-ac)	8900	3580
McGrede 21 (84-ac)	8500	3615
McGrede 22 (84-ac)	8300	3625
Sheppard 16 (57.45-ac)	†	3028
Gulf, Fishburn 30 (200-ac)	9500	3519
Erle P. Halliburton, Phillips 10 (95.63-ac)	3600	3673
Humble, Adams 9 (93-ac)	3200	3472
Edwards 38 (271.6-ac)	4300	3717
Harris Bros. 30 (175.18-ac)	5500	3519
Eve O'Byrne 15-B (104.2-ac)	4000	3656
Johnson, Rec., Baughman 2 (2-ac)	9000	3532
Lyons-Neeley, O'Byrne 4 (20-ac)	3000	3730
Margay Oil Corp., Freeman 5 (28-ac)	7200	3696
Midfield Oil Co., Rodden 9 (30.38-ac)	2200	3586
Phillips et al, Everett 7 (80-ac)	30	3592
Rudco O&G Co., Nicholson 9, Tr. 1 (113.3-ac)	1200	3700
Shell, Slaton 20 (123.65-ac)	9200	3644
Sinclair Prairie, York 21 (86.45-ac)	6000	3570
Stanolind, Harley 5-B (62.7-ac)	7800	3649
Jones 7-B (30.58-ac)	9000	3675
J. B. Stoddard & Adams, Bacle 1	8200	3601
Sun, McKinley 16 (82.3-ac)	6800	3688
Tooke 15-B (80-ac)	9500	3660
ANDERSON COUNTY (Long Lake)—		
Alex McCutchin et al, W. B. James 1 (10-ac)	200	5342
FRANKLIN COUNTY (Talco)—		
Humble, A. L. Truett 2 (101.2-ac)	600	4308
FREESTONE COUNTY (Cayuga)—		
R. L. Wheelock & J. L. Collins, Trinity Securities 2	10	4049
HENDERSON COUNTY (Cayuga)—		
Roeser & Pendleton, Inc., B. H. Wathen 8 (93-ac)	3000	4068
TITUS COUNTY (Talco)—		
Magnolia, K. Mainard 16 (130¾-ac)	295	4320
VAN ZANDT COUNTY (Van)—		
Pure, M. P. Neill 9 (100-ac)	130	2946
WILDCATS		
HUNT COUNTY—		
Texola Land Corp., J. M. Goin 1 (250-ac)	*	1010
LEON COUNTY—		
H. M. Ogg et al, O. Wiley 1-B	*	2000

*Failures; †Junked; ¶Million cu. ft. gas.

Oil in Courts

[*Continued from Page 12*]

nois, Wadhams Oil Company, and Empire Oil & Refining Company.

Individuals convicted are: Edward G. Seubert, Chicago, president; Allan Jackson, Chicago, vice president in charge of sales, and Edward J. Bullock, Chicago, vice president in charge of purchasing, all of Standard Oil Company of Indiana; Charles L. Jones, New York, vice president in charge of domestic trade; Charles E. Arnott, New York, vice president; Bryan S. Reid, Chicago division general manager, and H. T. Ashton, St. Louis, Missouri, manager of Lubrite Division, all of Socony-Vacuum Oil Company; A. G. Maguire, Milwaukee, Wisconsin, chairman of the board of directors of Wadhams Oil Company; H. E. Brandili, New York, vice president and general manager, and Harry D. Frueauff, Tulsa, vice president, both of Cities Service Export Oil Company; O. J. Tuttle, Tulsa, tank car sales manager for Empire Oil & Refining Company; Dan Moran, Ponca City, president, and Harry J. Kennedy, Ponca City, vice president in charge of marketing, both of Continental Oil Company; Henry M. Dawes, Chicago, president; C. B. Watson, Chicago, vice president, and R. H. McElroy, Jr., Chi-

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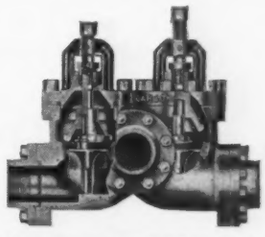

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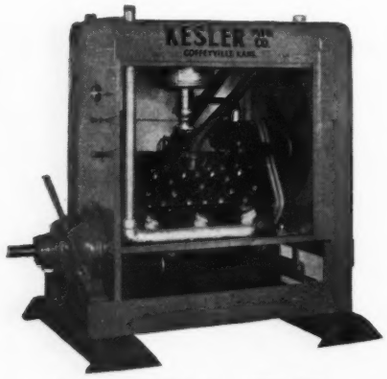
cago, tank car sales manager, all of Pure Oil Company; Alexander Fraser, St. Louis, Missouri, president, and P. E. Lakin, St. Louis, Missouri, general manager of sales, both of Shell Petroleum Company; J. W. Carnes, New York, vice president of Sinclair Refining Company; Edward L. Shea, New York, vice president; Noel Robinson, New York, and J. W. Warner, Tulsa, all of Tide Water Oil Company; Jacob France, Baltimore, Maryland, president and general manager, and Robert W. McDowell, Tulsa, vice president in charge of sales, both of Mid-Continent Petroleum Corporation; Frank Phillips, Bartlesville, president, and A. M. Hughes, Bartlesville, sales manager,

[*Continued on Page 188*]



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AT SUPPLY STORES

For Specifications and Prices Write

KESLER MFG. CO.

COFFEYVILLE, KANSAS

SOUTHWEST TEXAS

Refugio extension may open new Frio lens.

* * *

Eighth North Sweden sand may cover big area.

Corpus Christi. — Hogan Oil Company's J. S. Kelly 1, one mile northwest of the Refugio field, Refugio County, is flowing about 2 barrels of 36.5 gravity crude per hour through ⅛-inch choke after reworking. It extends production in that field one mile to the northwest and possibly opens a new Frio sand lens.

The test, in James Power Survey, was drilled to 6437 feet and attempted completion through perforations at several levels above this depth. It perforated three times in the 6000-foot zone, but salt water broke in each time. It has been finished finally, through perforations reported to be 5995-6000 feet. The test is showing a working pressure of only 20 pounds.

Rig has been skidded 660 feet and another test is being started in effort to further prove the producing horizon.

In San Patricio County, Plymouth Oil Company's Brigham 1 is drilling ahead after showing oil in the Heterostegina, Greta, sand at 4976-88 feet, but developing salt water in the last several feet on drill stem test. A number of tests were attempted but none were considered satisfactory. The well, in Section 62, Pauls Subdivision, is eight miles southwest of Taft and two miles east of White Point field. The test, after its show, attracted a flurry of interest in which fancy prices were offered for royalty on trend. The hole is contracted to 7000 feet in the Frio.

Turkey Creek, of West Saxet field, Nueces County, had two wells being closely watched. Renwar Oil Corporation's Charles McKinzie 1, 1500 feet east of the discovery, was coring for the 5800-foot zone. It tested salt water in the 5300-foot sand, as did the discovery. One mile southwest of the discovery, Renwar Oil Corporation's Morgan 1 was drilling about 5000 feet and reported to be running much lower structurally than the first producer.

Humble Oil & Refining Company and Barnsdall Oil Corporation's L. A. Webb 14, lot 7, block 56, lessened the possibilities of Marine drilling in the Flour Bluff field, Nueces County, when it was abandoned at 6702 feet. The test, offset to submerged lands, had a broken sand series from 6628-6702 feet, but developed salt water.

Trying to complete Starr County wildcat

Mission.—Transwestern Oil Corporation is attempting to complete T. B. Slick School 1, third wildcat drilled on the company's prospect in central Starr County. The well, after drilling to 6860 feet, stuck drill pipe at 6702 feet. A portion of it has been recovered and 5½-inch casing landed about 4500 feet. It will be perforated in sand section 4173-4259 feet, where it showed for a possible producer.

A drill stem test at 4170-93 feet showed 410 pounds pressure, 140 feet of mud and an odor of oil in four minutes. Another drill stem test at 4193-4232 feet developed 470 pounds working pressure and 240 feet of mud with good petroleum odor, the test being for a duration of 5 minutes. Bottom-hole pressure at 4192 feet was 1780 pounds, while bottom-hole pressure at 4232 feet was 1910 pounds.

The test is 990 feet from the east line and 330 feet from the south line of Survey 266, and 660 feet north of Slick Estate 1, abandoned due to mechanical difficulties.

Atlantic Refining Company's American Rio Grande Land and Irrigation Company 1, discovery well of the Weslaco field in Hidalgo County, will be reworked. After producing a large volume of gas and spraying 18 barrels of 48.6 gravity oil per day from perforations at 8990-9005 feet, the well will be plugged back for tests at upper levels. It is the deepest producer ever completed in South Texas.

Three shallow wells in Val Verde County

San Antonio.—E. P. Campbell and Ralph P. Ross have finished their first three producers on the White and Wardlow Ranch, 50 miles north of Del Rio in Val Verde County, to establish the first commercial production in the southern portion of the Edwards Plateau. The wells, averaging 302 to 310 feet in depth, produce an average of 8 to 12 barrels per day on pump. Production is from the Cretaceous likely upper phase of the Glenrose formation.

The producers, in GC&SF Section 88, are in the immediate vicinity of a deep test drilled by Magnolia Petroleum Company several years ago. Attempts were made at one time to develop these shallow properties, but market situation apparently hampered the operations.

West Dale field to be repressured

San Antonio.—Ralph R. Ogden has commenced operation of a repressuring plant in the West Dale field, Caldwell County, discovered by him last year. The 2200-foot serpentine producing area has six wells drilled on comparatively wide locations.

The entire structure is controlled by Og-

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REVERSIBLE RATCHET WRENCHES

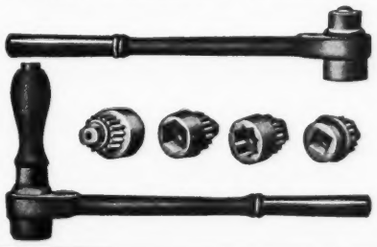
1916 PATTERN

No.	Length of Handle Inches	Size of Opening, Inches		List Prices	
		Square	Hexagon	With One Gear Each	Extra Gears Each
0	7	¼,⅜,½	½, ⅝	$5.00	$1.00
1	10	⅜,½,⅝, ⅝,¾,⅞, 1	⅝, ¾, ⅞	6.00	1.00
2	12	½,⅝, ¾,⅞, 1, 1⅛	¾, ⅞, 1, 1⅛	7.00	1.25
3	15	⅝, ¾,⅞, 1, 1⅛, 1¼	⅞,1 ⅛,1⅛,1¼	9.00	1.50
3½	18	1,1 ⅛,1⅛	.....	10.00	1.50
4	18	1,1⅛,1¼,1⅜ 1⅛	1 ⅛,1¼,1 ⅜,1⅝	12.00	2.00
4½	24	1½	1 ⅝	14.00	2.00

"RED FACE" BRIDGE BUILDERS WRENCHES

No.	Length of Handle Feet	Approx. Weight Pounds	Size of Opening, Inches		List Prices	
			Square	Hexagon	With One Gear Each	Extra Gear Each
1	3	11	1,1⅛,1¼	1 ⅛,1¼	$14.00	$2.00
2	3	14	1⅛,1 ⅜ 1¼,1½	1 ⅜,1⅝ 1 ⅝,2	16.00	4.00
3	3	23	1⅝,1 ⅝,2 2,2¼,2⅜	2 ⅛,2⅜ 2⅜,2 ⅛,2¼	24.00	6.00
4	3½	32	2½ 2½,2¾,3, 3¼	2 ⅝,3⅛ 3½,3⅜	30.00	8.00
[5	3½	40	3¼,3½,3¾	4¼,4⅝	35.00	10.00

"RED SOCKET" WRENCHES

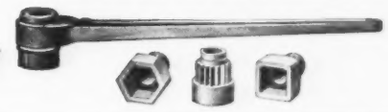


No.	Length Handle Inches	For Nuts Short Diameter		List Prices	
		Square	Hexagon	With One Socket Each	Extra Socket Each
1	12	⅜ taper, ½,⅝, ¾, ⅞, 1, ⅛, ⅜, 1, ⅛, 1¼	⅝, ¾, ⅞, 1, ⅛, 1¼	Style A $4.00 Style C 5.00	$1.00 1.00
2	16	1,1 ⅛,1 ¼,1¼, 1 ⅜	1 ⅛,1¼,1 ⅜,1⅝	6.00	2.00
3	20	1,1 ⅛,1¼,1 ⅜, 1⅝,1 ¾	1,1 ⅛,1¼,1 ⅜, 1⅝,1 ¾	10.00	3.00

Nos. 2 and 3A

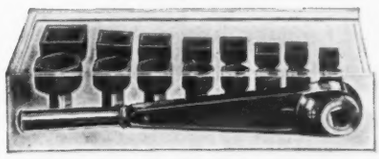
No. 3, Style A has a 1 1/16-inch hole for bolt to pass through socket.
No. 3, Style A has a 1⅛-inch hole.

"RED SOCKET" STEEL SOCKET BRIDGE WRENCHES



No.	Length of Handle Feet	Approx. Weight, Lbs.	For Nuts Short Diameter Square or Hexagon	List Prices	
				With One Socket Each	Extra Socket Each
1	2	10	1, 1 ⅛, 1⅛, 1¼, 1 ⅜, 1 ⅜, 1½, 1⅝, 1¾, 1 ⅞, 2, 2¼, 2 ⅛	$10.00	$3.00
1½	3	12		14.00	3.00
2	3	23	1⅝, 1 ⅞, 1⅞, 1⅞, 2, 2 ⅛, 2¼, 2⅜, 2½, 2⅝, 2¾, 2⅞, 3, 3⅛	20.00	6.00
2½	4	26		24.00	6.00
3	3	50	3⅛, 3⅜, 3½, 3¾, 3⅞, 4⅛, 4¼, 4½, 4⅝, 5	40.00	12.00
3½	4	54		45.00	12.00

"RED SOCKET" MULTIPLEX WRENCHES



No. 1—With List Prices

No. 1 Wrench has a 12-inch Handle and will take square or hexagon nuts, ¼, 5/16, ⅜, 7/16, ½, 9/16, ⅝, ¾-inch Bolt Diameters, ½, 19/32, 11/16, 25/32, ⅞, 31/32, 1 1/16, 1⅛-inch Smaller Outside Diameters.

Price on Wrench Complete with sixteen Sockets....$10.00
Price on Wrench only..... 6.00
Price on Extra Sockets, each..... .50

No. 2—With List Prices

No. 2 Wrench has a 20-inch Handle and will take square or hexagon nuts, ¾, ⅞, 1, 1⅛, 1¼-inch Bolt Diameters. 1¼, 1 7/16, 1⅝, 1 13/16, 2-inch Smaller Outside Diameters.

Price on Wrench Complete with ten Sockets.....$18.00
Price on Wrench only..... 10.00
Price on Extra Sockets, each..... 1.00

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These "Red Socket" Wrenches are used in practically every oil field throughout the world and carry an absolute guarantee.

GUARANTEE

A new handle for a broken one returned.

CONVENIENT—They will turn nuts on or off without removing the Wrench, and soon make good their cost by saving labor and time.

den and further development will be along the lines to obtain the most benefits from the repressuring project. About 500 pounds pressure will be maintained on the formation.

Eighth sand discovery at North Sweden on production

Laredo.—North Sweden field, Duval County, has its eighth horizon on production as a result of the completion of Hiawatha Oil & Gas Company's Southland 6. The well, in Section 12, is bottomed at 5505 feet in a Cockefild sand series topped at 5488 feet.

The test is located 6000 feet southeast of the nearest production in the Pettus sand, next deepest zone in this prolific field. The Pettus was topped at 5410 feet, but failed to show sufficiently to indicate production, prompting the deepening. The new sand was cored 5488-5500 feet, sand and shale being found to 5505 feet. Casing was landed on bottom and perforated at 5491-5500 feet with 20 shots. These records are revised by steel line measurement, the 5513-foot level reported from drillers' log being incorrect.

This discovery is looked upon as being a material increase in the reserve value of the field. No drilling had been done on the main part of the structure to a sufficient level to test this sand, hence it may cover a large part of the field.

In McMullen County, Edwin M. Jones added another 4800 feet to the southwest size of the Ezzell Ranch field. Ezzell F-1, Section 29, flowed and pumped an estimated 525 barrels of crude per day from 1527 feet. It cored oil sand 1492-1506 feet and 7-inch casing was set at 1482 feet.

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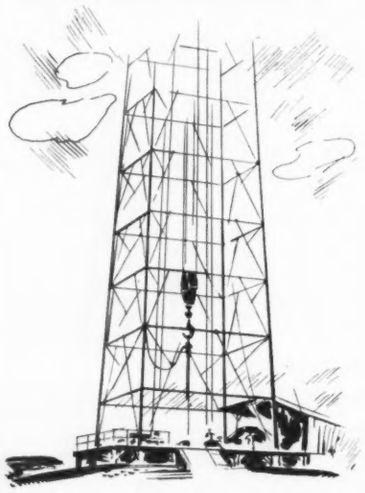
INSURANCE



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Oil in Courts

[*Continued from Page 186*]

both of Phillips Petroleum Company; W. G. Skelly, Tulsa, president, Skelly Oil Company; E. B. Reeser, Tulsa, president, Barnsdall Refining Company; I. A. O'Shaughnessy, Minneapolis, Minnesota, president, Globe Oil & Refining Companies, and Arthur V. Bourque, Tulsa, secretary and treasurer, Western Petroleum Refiners Association.

Renew Ohio gas dilution suit

An investigation of alleged dilution of natural gas served some 700,000 Ohio customers of the Columbia Gas & Electric Company and six affiliates and factors which prompted filing of a $42,000,000 damage suit by John L. Davies, Columbus city attorney acting as a gas consumer, was renewed at a special session of the Franklin County grand jury which convened at Columbus last week.

Davies' action, filed in Common Pleas Court at Columbus, alleges fraudulent dilution of natural gas with 7 to 9 percent of inert flue gas or smoke over a nine-year period and seeks treble damages against the defendants under the utilities commission law of Ohio. Defendant corporations, besides Columbia Gas & Electric Company, are: Preston Oil Company, Ohio Fuel Gas Company, Columbia Oil & Gas Corporation, Northwestern Ohio Natural Gas Company, Cincinnati Gas & Electric Company and the Dayton Power & Light Company. Fourteen officers of the companies were made defendants also.

Witnesses summoned to give testimony before the grand jury last week included Charles F. Huff, vice president of the Preston company; P. A. Alberty, secretary of Ohio Fuel Gas Company; Paul B. Clapp, vice president of Columbia Engineering & Management Corporation; Harry R. Shank, secretary of the Ohio state utilities commission.

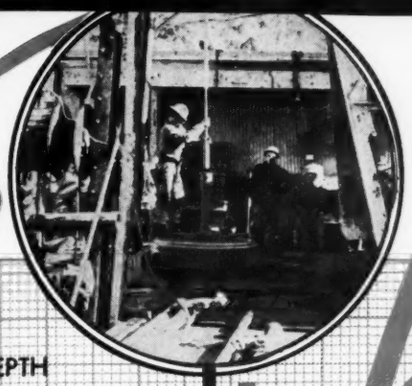
Meanwhile, the Cincinnati Gas & Electric Company, and H. C. Blackwell and James M. Hutton, officers of the company included among individual defendants, carried their fight against depositions sought to be taken from them to the District Court of Appeals. Their petition for an injunction against the depositions was overruled by Common Pleas Judge Dana Reynolds on December 30. The company and its officers maintain that the damage suit does not rightfully belong in the Franklin County courts and that they were improperly served as defendants.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Graham, Dunn 2 (McCampbell)	750	7142
GOLIAD COUNTY—		
Swiger, Wood B-1 (Sarco Creek)	35	5048
JIM WELLS COUNTY—		
Southern Minerals, Hawkins 1, Ventura Flores gr	*	6022
KARNES COUNTY—		
Luling, Boyce 18 (S. Burnell)	300	3658
LIVE OAK COUNTY—		
Ranco, Fee 1, Poitevent sur	*	5314
NUECES COUNTY—		
Crown Central, Hunter 9 (Saxet)	450	4413
Culton, Baldwin 4 (Saxet Heights) (dd fr 5144½)	350	5167
Houston, Fee 1-A (Saxet) (perf 6295-6305)	¶10	6915
Humble & Barnsdall, Chapman 4 (Flour Bluff)	600	6677
Webb 14 (Flour Bluff)	*	6702
Seaboard, Luby 9 (Luby)	500	5068
Texon, Sevier 3 (S. Agua Dulce)	*	7110
REFUGIO COUNTY—		
Quintana, Heard 14 (Tomoconnor)	2500	5925
Union, Power 9 (Refugio) (perf 7702-05)	360	8010
SAN PATRICIO COUNTY—		
Humble, Mayo 33 (Taft)	750	3980
VICTORIA COUNTY—		
Barnsdall, McFaddin 2 (McFaddin)	350	4401
Echols, Dunseth 1, Perez sur	*	6509
Portilla, Welder 3 (Hughes)	*	5094
SAN ANTONIO DISTRICT		
BEXAR COUNTY—		
Fair, Medina 1, lot 1, blk 55	20	1190
CALDWELL COUNTY—		
Ellmag, Dickerson 1 (Salt Flats)	30	2722
Martell, Young 6-E (Branyon)	128	2339
Millican & Norman, Talbert 6 (Luling)	61	2103
GUADALUPE COUNTY—		
Pegg, Rumpf 1, Burnham survey	*	3000
VAL VERDE COUNTY—		
Campbell & Ross, Whitehead & Wardlow 1, sec 88	10	310
Whitehead & Wardlow 2, sec 88	10	310
Whithead & Warlow 3, sec 88	15	302
ZAVALA COUNTY—		
Wilcox, Gilliam 2 (Batesville)	*	3983
LAREDO DISTRICT		
DUVAL COUNTY—		
Circle, Southland 1, sec 5	*	5200
Cox & Hamon, Casas 1 (Hoffman) (perf 2695-2715)	¶10	2875
Cox & Hamon & Gorman-Yoakum, Hoffman 3 (Hoffman)	26	2725
Hougen, Patton 1, sur 148	*	5016
Magnolia, Duval Ranch 14 (sec 203, Piedre Lumbre)	150	2082
Navarro, Rossi B-1 (N. Sweden)	350	5369
Republic, Buoy 2 (N. Sweden)	430	4804
Standard of Kansas, Rossi 12 (N. Sweden)	650	4743
JIM HOGG COUNTY—		
French, Garza 8 (Alworth)	5	1047
McMULLEN COUNTY—		
Cities Service, Morris 1, Perieda sur	*	1750
Coyle, Two Rivers Ranch 1, sec 60.	*	1505
Jones, Ezzell F-1 (Ezzell)	550	1527
WEBB COUNTY—		
Anderson & Stieren, Martin 5 (Oilton)	187	1900
Campbell & Killam, Thompson 1 (Killam-Oilton)	100	1930
Cox & Hamon, Martin 3 (Oilton)	*	1961
Highland, White 9 (Killam)	*	2055
Jones, Laurel 1 (Killam-Oilton)	210	2002
Killam, Saenz 1 (Oilton)	216	1935
Mountain Townsite, Fee 2 (Oilton)	150	1913

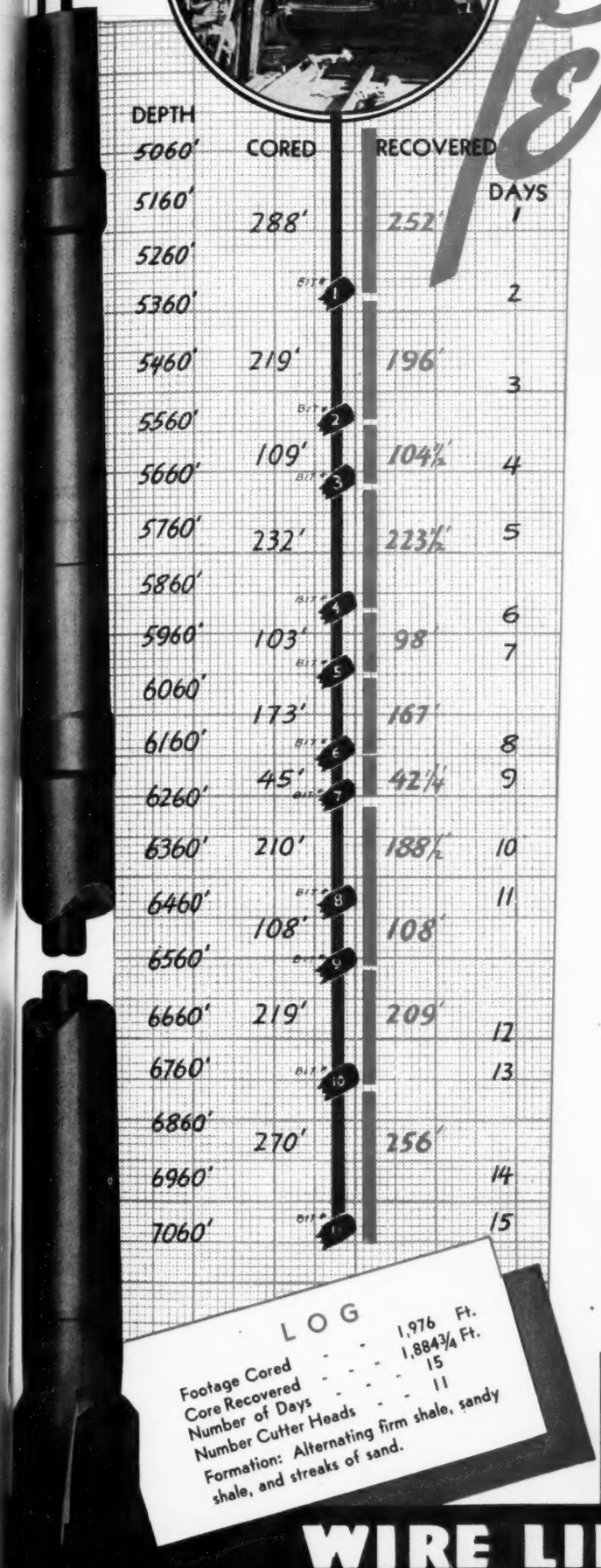
*Failures; †Junked; ¶Million cu. ft. gas.



ELLIOTT *Performance*

ASSURES

EFFICIENT, ECONOMICAL DEPENDABLE CORING



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ELLIOTT

WIRE LINE RETRACTABLE CORE DRILL and DRILLING ASSEMBLY

TEXAS GULF COAST

Dickinson production being extended southeast.

* * *

Friendswood extended mile east; to be busy spot.

Houston. — Dickinson, Galveston County, may be extended 2½ miles southeast by Humble Oil & Refining Company's Peters 1, J. W. Lytle Survey. At the end of the week the hole was plugging back to 8363 feet after drilling to 9355 feet in salt water sand topped at 9340 feet. It logged gas sand from 8026 to 8040 feet and oil sand at 8218 to 8223 feet. These sands will be tested by perforations. According to an electrical survey of the hole, sands at 8503 to 8510 feet, 8877 to 8886 feet and from 8970 to 9006 feet gave indications of commercial oil. The extension is 13,000 feet east of so-called Gillock production and 12,000 feet southeast of production at Dickinson. If it is a producer it will be the largest extension to Dickinson since Gillock Petroleum Company extended the field some time ago to discover the so-called Gillock field. Peters 1 will also add several thousand more productive acres to Dickinson and make it second to Conroe in size.

Friendswood Going East

Friendswood, Harris County, was extended 1 mile east by Humble Oil & Refining Company's Kiesling & Dixon 1, T. Choate Survey. The well came in flowing 608 barrels of pipe line oil daily from Frio formation at 6050 feet. The oil flow was through a ¼-inch choke. Tubing pressure was 875 pounds and casing pressure 725 pounds. Kiesling & Dixon 1 logged top of the oil sand at 5830 feet and 7-inch casing was set at 5936 feet. It is about normal structurally with the discovery well, indicating that the field will go further east, across the Houston-Galveston highway onto J. M. West property. Humble Oil & Refining Company also completed Kiesling 2, near Kiesling 1, making 744 barrels daily through a ¼-inch choke. Casing was perforated from 5854 to 5870 feet with 20 shots.

Humble Oil & Refining Company has 6 rigs at work at Friendswood. It is expected that this field will lead all other fields in the Texas Gulf Coast in development the coming year.

North and east of the discovery well at Fairbanks, Harris County, E. L. Smith and H. Ownby Drilling Company announced location for L. M. Myers 1, 330 feet east of creek and midway between north and south line of Lot 8 of the Geo. Ayers Survey. The well will be spudded in before March.

Humble Oil & Refining Company has spudded Rohlf 1, north of Crosby, 466 feet out of the most northerly southwest corner of tract in the J. Sellers Survey.

Hastings North Edge

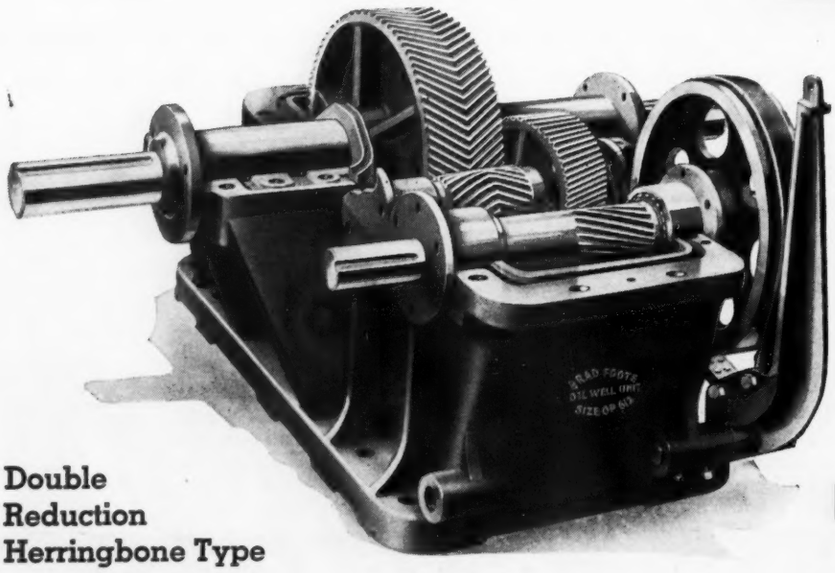
Two wells on the north side of Hastings were nearing completion at the end of the week. E. N. Hailey's Blummer 1, HT&B Section 28 was flowing into pits at 6059 feet. Oil sand was topped at 6027 feet and 7-inch casing was set at 6059 feet. Sensia Oil Company's Blummer 1 was also flowing into pits at 6069 feet. Oil sand was encountered at 6078 feet and 7-inch casing was cemented at 6076 feet.

Rowan Drilling Company and Shell Petroleum Corporation have another well flowing at Danbury field, Brazoria County. Jamison 4 is making 1½

Brad Foote

OIL WELL UNITS

"HELL FOR STOUT"



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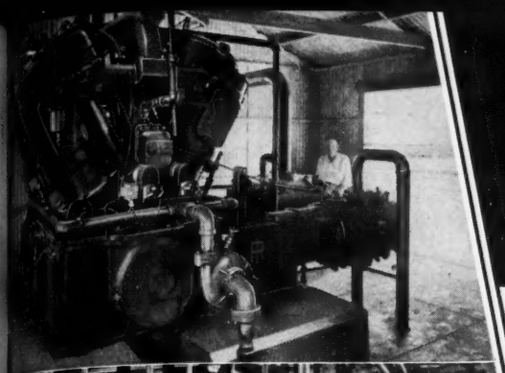

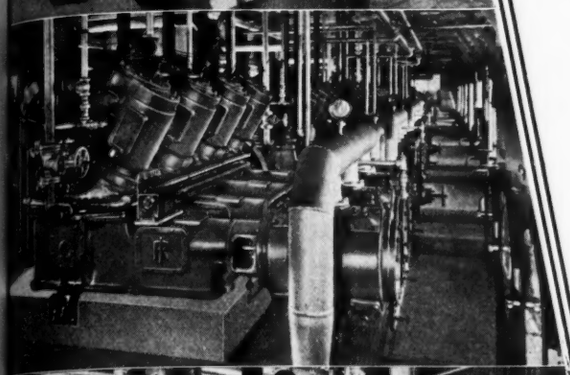

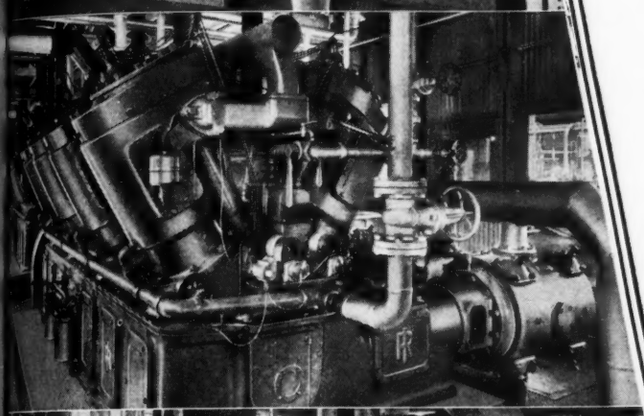

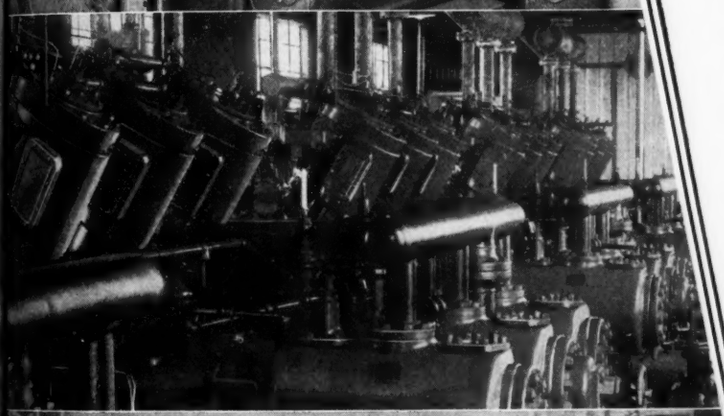

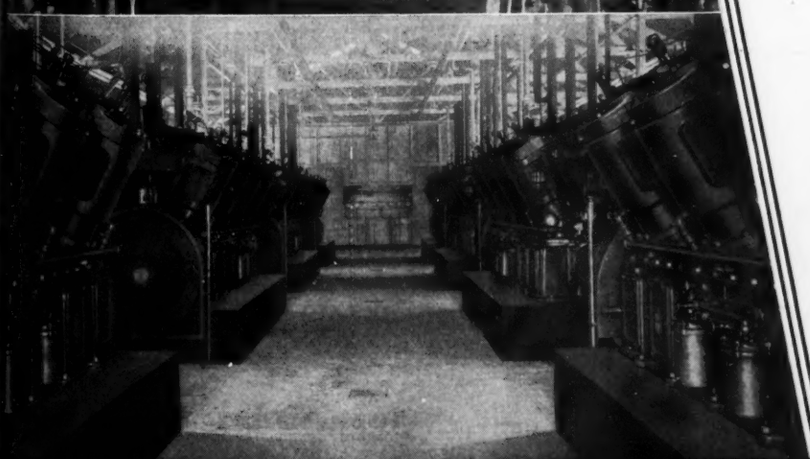

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(GAS-ENGINE-DRIVEN COMPRESSOR)

ON INSTALLATION

The XVG is shipped fully-assembled as a one-piece, compact, easily-handled machine. Because of its smooth-running balance, and single-unit construction, it requires only a simple foundation of about ½ the size required by machines of older design.

ON OPERATING ECONOMY

The four-cycle XVG engine is very economical in fuel gas and lubricating oil consumption. Direct power transmission from power to compressor cylinders effects a high mechanical efficiency. Compressor cylinders are adequately valved for low gas or air speeds and are provided with thorough water-jacketing, resulting in efficient compression.

ON PLANT FLEXIBILITY

The multi-cylinder four-cycle XVG engine will run equally well at any point between full and no load. The engine permits automatic or hand adjustable speed control between full speed and half speed. The multiple arrangement of compressor cylinders offers various easy means for further capacity and pressure regulation.

ON RELOCATION

When it is necessary to move a compressor to a new location, the old foundation is a total loss. With the XVG this loss is cut in half due to the small size and simple foundation. There is an additional saving, since the unit does not have to be dismantled and reassembled for relocation.

ON OBSOLESCENCE

The XVG is the leader in gas-engine-driven compressor design and promises to retain this position. Small inertia forces, smooth running-balance, full force-feed lubrication, sturdy construction and conservative rating are all sound reasons why XVG's do not become "prematurely" worn out.

ON MAINTENANCE

Due to its original design and numerous refinements, not to be found in any other engine of this type, the wear of any parts in the XVG is remarkably little. When repairs become necessary, the parts are small and inexpensive, and the replacements are easily made.

Ingersoll-Rand offers a long list of equipment for oil field and refinery service. There are Cameron pumps for pipe lines, hot-oil charging and a large variety of specially-designed pumps for refineries. There are also Diesel engines, portable compressors, rock drills, pneumatic tools, etc., for oil field use.

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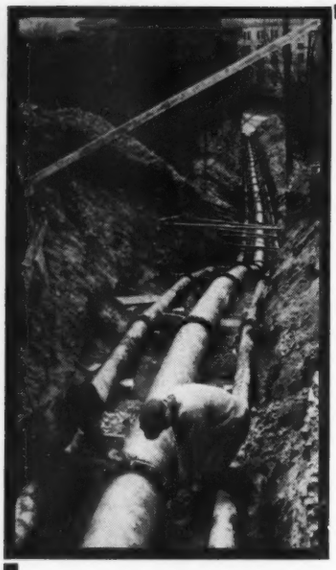

MONO-CAST DOUBLEX SIMPLEX PIPE

Photo shows 8", 16" and 6" Mono-Cast Doublex Simplex Pipe being installed in mains conveying natural gas at high pressure through thickly populated areas in a northern state. Although the terrain was quite rugged, and the ditch as deep as 15 feet in some places, the inherent flexibility of the Doublex Simplex Joint and the ruggedness of the pipe made the use of fittings or protective measures unnecessary. Mono-Cast Doublex Simplex Pipe has been convincingly field-proven, and is now being extensively used for high pressure gas and oil transmission and distribution lines with complete confidence throughout the United States and in foreign countries. For literature address . . .

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barrels per hour, 10 percent washwater, through a ¼-inch choke at 1987 feet. Tubing pressure was 700 pounds and casing pressure 800 pounds. Jamison 4 topped the oil sand at 1979 feet and set 7-inch casing.

Glenn H. McCarthy was preparing to squeeze cement through perforations at 7718 to 7727 feet after drilling 5 feet deeper in Broussard Trust 1, Cheek area, C. Hillibrandt Survey, Jefferson County. Another production test will be made the coming week. The reason for killing Broussard Trust 1 was the increased salt water flow.

Second Well at Orange

The second well on the southwest side of Orange, Orange County, to pick up the new sand discovered by Tillery & Ryan, is Gulf Oil Corporation's Orange National Bank 1, east offset to the discovery well, W. Dyson Survey. The well logged sand at 5908 feet and cored to 5922 feet. The company will make a drill-stem test before setting casing. This test is higher structurally than the discovery well. Glenn H. McCarthy's Brown 2, flank test, S. M. Luce Survey, is down to 6300 feet and is reported running low.

Sun Oil Company's Bayshore 1, which discovered a new sand at Palacios, L. Goodwin Survey, Matagorda County, made 350 barrels of 54 gravity distillate daily through a ¾-inch choke with a casing pressure of 2150 pounds. The well also made an estimated 28,000,000 cubic feet of gas daily at 9200 feet.

TEXAS GULF COAST
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Pinchback 2-C	392	6778
ANAHUAC—		
Humble, Middleton 30	452	7085
BOLING—		
Salley & Krol, Texas Gulf Sulphur 3	24	440
CLINTON—		
Stanolind, Moody 1	¶¼	3225
DICKINSON—		
Stanolind, Damiani 4	250	8475
FRIENDSWOOD—		
Humble, Grey 2	576	6030
Kiesling & Dixon 1	608	6050
Kiesling 2	744	6050
HASTINGS—		
Humble, Alexander 5	615	5910
Stanolind, Edwards 7	480	6080
Miller 4	227	6145
Shaw 14	600	6080
HULL—		
H. Mecom, Stengler 8	95	3293
LOCHRIDGE—		
Gulf, Reiss 3	45	6359
Shell, Ramsey A-6	97	6360
MANVEL—		
Texas Co., Belcher B-26	385	5145
NOME—		
Shell, Carpenter 6	508	6040
PALACIOS—		
Sun, Bayshore Farms 1, dr to 11,327 ft, pb and tested 9200 ft	350	9200
TOMBALL—		
Humble, Tomball Townsite Unit 26, No. 1	375	5593
SARATOGA—		
Rio Bravo, Fee 504	20	1509
WEST BEAUMONT—		
Stanolind, Keith & Dowlen 1 (wo)	91	5400
WALLER COUNTY—		
Humble, South Texas Dev. Co. 1, W. Willhouse sur (core test)	*	6500

*Failures; †Junked; ¶Million cu. ft. gas.

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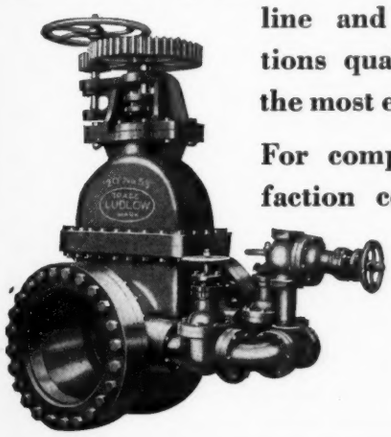

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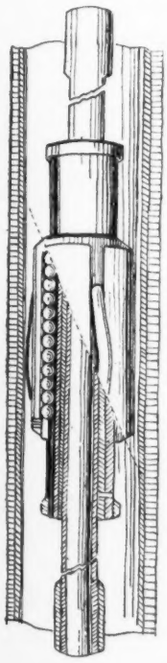
(Non-Friction)



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"HIGHER-STANDARD"
CABLE TOOLS

Timbalier Bay field opened with 300-barrel flow.

* * *

Raceland area test completed after long delay.

Lake Charles.—Two new oil fields were discovered in South Louisiana at the end of the past week. Timbalier Bay and Raceland prospects were converted into oil fields by Gulf Oil Corporation and Amerada Petroleum Corporation and Louisiana Land & Exploration Company.

The latest discovered is Raceland. Amerada Petroleum Corporation and Louisiana Land & Exploration Company's South Coast Corporation 1 was completed January 26 after perforating casing from 10,183 to 10,208 feet with 84 shots, flowing 30 barrels of 38 gravity oil, 6 to 15 percent basic sediment and water, through ¼-inch choke. Tubing pressure was 1575 pounds and a casing pressure 1200 pounds. The well is in Section 34-15s-19e, was drilled to 10,314 feet and 5-inch casing was set at 10,262 feet. Cement was drilled out to 10,219 feet. The wildcat gave indications of opening a new oil field the latter part of 1937 when oil sands with shale breaks were logged at 10,185 to 10,224 feet. In this 39 feet of broken section there were 30 feet of oil sand.

Gulf Oil Corporation completed State PP 3, Section 36-23s-21e, January 25, flowing 14 barrels of 31-gravity pipe-line oil per hour through a 3/16-inch choke from Miocene sands at 6955 to 6959 feet. Tubing pressure was 800 pounds and casing 600 pounds. The oil tested 31 gravity.

State PP 3 was spudded in the middle of 1937 and was drilled to 8728 feet in salt, establishing a new salt dome when the top of the formation was logged at 7741 feet. Several sands showing oil were encountered and drillstem tests showed evidence of commercial production. After working the hole with geophysics it plugged back but due to mechanical difficulties the completion was delayed. Last week casing was perforated with 20 shots at 6955 to 6959 feet.

Union Sulphur Company's Calcasieu National Bank 1, Woodlawn area, Section 12-9s-8w, Jefferson Davis Parish, was the first wildcat in 1938 to show gas and distillate on tests, and is in process of being completed. Last week the company was cutting and pulling at 8284 feet after casing was perforated with 17 shots from 8284 to 8286 feet. After perforating the casing the well showed 2,350,000 cubic feet of gas and two barrels of distillate per hour.

At Bayou Blue, Iberville Parish, Humble Oil & Refining Company was making a production test on Schwing Lumber Company 1, Section 67-9s-11e, in a new sand. The hole was drilled and cored to 6837 feet in sand showing oil. Top of the oil sand was logged at 6829 feet. Seven-inch casing was set at 6829 feet. Screen and liner has been set. The company has made location for Wilbert 6 in Section 66-9s-11e, and probably will drill to the new sand.

Louisiana Crusader Oil Company's E. B. Schwing 1, Choctaw field, Section 29-8s-11e, Iberville Parish, tried to blow out last week from a new sand at 8969 feet and drill stem was stuck. While pulling on the stuck pipe it parted. Schwing 1 logged sand showing oil at 8965 feet.

Another wildcat location was announced on the University Block in East Baton Rouge. Austin B. Taylor made location for Duplantier 1 in Section 65-7s-1e. It is 400 feet south and 45 degrees west of Superior Oil Company's Duplantier 1 which was abandoned below 10,000 feet some time ago.

Three deep wildcats were abandoned

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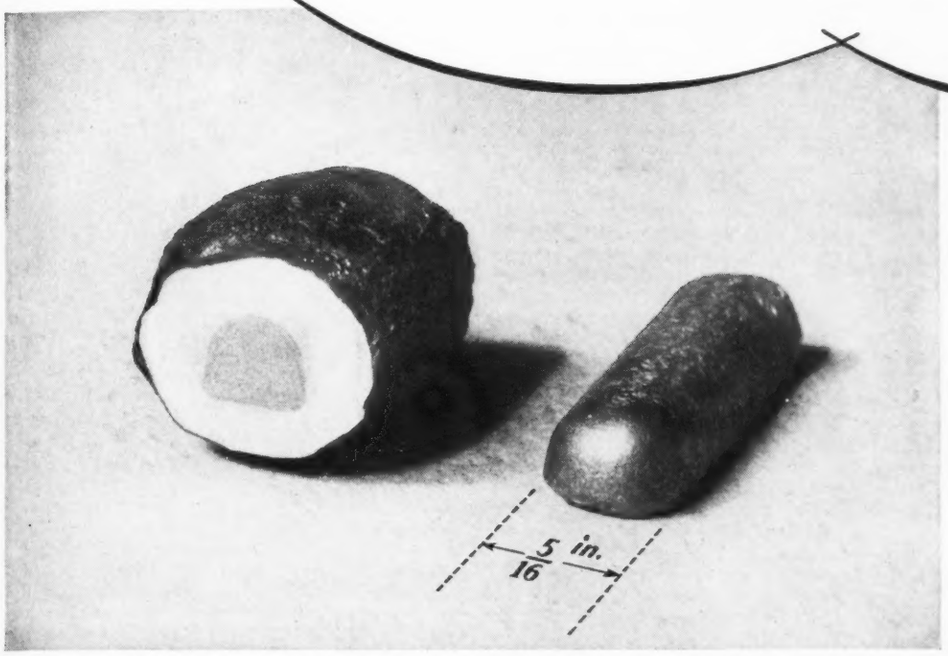
SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANSE LA BUTTE—		
Louisiana Crusader, Martin 1	*	1856
BLACK BAYOU—		
Shell, Watkins 39	434	4594
CAMERON MEADOWS—		
Magnolia, Cameron Meadows 21	350	3940
CHARENTON—		
Pan American, D. Parro 1	*	8550
IOWA—		
Magnolia, Waite 13	112	4435
JENNINGS—		
W. T. Burton, Robira 5	540	6842
Port City Oil Co., Fee B-21	400	1986
Superior, Jennings Heywood 5	421	6645
PINE PRARIE—		
Schlicher Prod. Co., LeDenois 2	*	5916
POTASH—		
Humble, Orleans Levee Board 31	*	845
STARKS—		
Lutcher Moore, Fee 3	126	4367
WHITE CASTLE—		
T. D. Humphreys, Adams 1	*	8840
Shell, Wilbert 11	332	6795
ACADIA PARISH—		
Gulf, Broussard 1, Midland area, 49-10s-2w	*	9950
CAMERON PARISH—		
Humble, Miami Corp., 1, Catfish Lake area, 8-14s-5w	*	10,177
LAFOURCHE PARISH—		
Gulf, State PP 3, Timbalier Bay, 36-23s-21e	336	6959
ST. MARTIN PARISH—		
Shell, Frederick 1, Arnaudville area, 38-8s-5e	*	9500

*Failures; †Junked; ¶Million cu. ft. gas.

Haystellite Inserts are Hard *and Tough*



In the polished cross section at the left note the excellent bond obtained between a Haystellite Insert and high-test steel. At the right is a Haystellite Insert.

. . . and Bond Readily with Steel

All tungsten carbides are naturally hard, but Haystellite Inserts are *both hard and tough.* When properly supported, Haystellite Inserts are tough enough to withstand the most severe impacts encountered in oil well drilling. They seldom shatter, spall, or flake off. In addition, Haystellite Inserts bond readily and strongly with steel, making the setting process simple.

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in South Louisiana last week. Gulf Oil Corporation's Broussard 1, Midland prospect, Section 49-10s-2w, Acadia Parish, quit at 9955 feet after drill pipe was stuck. Seven-inch casing had been set at 9672 feet.

In the Catfish Lake area, Humble Oil & Refining Company abandoned Miami Corporation 1, Section 8-14s-5w, Cameron Parish, at 7849 feet in a side-tracked hole. The wildcat was drilled to 10,177 feet before plugging back.

Shell Petroleum Corporation's A. Frederick 1, Arnaudville prospect, Section 38-8s-5e, St. Martin Parish, resulted in a dry hole after drilling to 9500 feet. Operators are doing geophysical work in the hole.

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SHREVEPORT, LA.

What are you doing to prevent WAR?

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Lisbon to get deep test sometime this spring.

★ ★ ★

Bulk of work at Rodessa still in Texas portion.

Shreveport.—Continued rumors are heard of a deep test either to the Travis Peak, Lower Marine, and even some reports indicate possibly to the Permian lime, in the Lisbon field during the coming spring and summer. The reports have placed the location variously on the south edge of the present Basal Glen Rose lime producing area to the east of it, and to the northwest of the present producing limits.

No definite location for such a test in the field proper has been staked but recent transfer of oil and gas rights on a lease in SW SE 1-20n-5w, affecting the horizons below the present producing level have lent color to the rumor of the location being in that immediate vicinity. It has also been rumored for Section 4-20n-4w.

The basal Glen Rose lime producing limits of the field were definitely extended a fourth mile northeast last week when Magnolia Petroleum Company's J. C. Fowler 1, C W½ NW SW 28-21n-4w, was completed after acidization with 3000 gallons, flowing 40 barrels per hour through ½-inch tubing choke with 250 pounds tubing pressure and 80 pounds casing pressure, at 5209 feet. It logged porosity from 5192 to 5197 feet; elevation is 289 feet.

The three-fourth mile southwest outpost of C. R. Schuster, Sallie Lloyd 1, C S½ SW SW 2-20n-5w, which recently logged 7 feet of heavily saturated lime and 5 additional feet slightly saturated, just above 5271 feet, was ready to test after casing was cemented at 5242 feet. Indications of production in this test have made the south side of Lisbon much more encouraging, linked with the fact that greater porosity is being found in the southeast trend.

In the east end of the field Atlantic Refining Company's J. T. Bean, Jr. B-2, C S½ NW NE 32-21n-4w, with elevation of 247 feet logged porosity from 5190 to 5195 feet and from 5200-05 feet and set casing. Total depth is 5206 feet.

Twelve tests were drilling last week at Lisbon, 8 in Claiborne and 4 in Lincoln Parish. Two others were rigging in Claiborne, 1 in Lincoln, and there were 4 active locations and 1 derrick in Claiborne, giving the field 18 active tests.

E. T. Oakes, H. D. Easton and associates' Griggs 1, C SW 36-18n-1w, Lincoln Parish wildcat near Choudrant, was showing a little gas and distillate during swabbing operations Thursday, after being treated with acid twice, once with 2000 gallons and the second time with 4000 gallons, following perforation with 48 shots in 5½-inch casing at 5932 to 5941 feet in basal Glen Rose lime (Petitt) where electrical logging device had indicated good porosity and resistivity. Total depth is 6260 feet in Travis Peak.

The well when first tested before acidization after shooting swabbed entirely dry without showing.

W. J. Furlong, Jr., and associates' E. M. Clark 1, Section 10-20n-7e, which shut down last week in pink anhydrite at 6025 feet in lower Marine, will be deepened 500 feet in an effort to pick up the Permian lime; elevation is 103 feet. Several companies are co-operating in the deepening. Joe Modisett and associates were also rigging up to deepen to 9000 feet in Frost Lumber Company 1, C NE SW 14-21n-1e, Union Parish wildcat, shut down at contract depth at 7010 feet in lower Marine.

Gulf Oil Corporation's Goodpine 1, C SE SW 25-14n-8w, Bienville Parish wildcat, was reaming to bottom at 7371 feet. Arkansas Fuel Oil Company's Franklin 1, C NE NW 20-11n-9w, with elevation of 135 feet, was drilling at 7072 feet. J. G. Sutton Oil Company's Sabine 1, SE NW NE 23-7n-14w, proposed 10,000-foot test in west Zwolle, Sabine Parish, cemented 9⅝-inch casing at 2132 feet and was waiting on cement.

Standard Oil Company of Louisiana's Brownfield 2, C SW NW 5-19n-5w, had reached the third deepest level ever attained by a test in the North Louisiana district last week as it drilled at 9387 feet in lower Marine black shale, slightly broken. It is in the Sugar Creek field, Claiborne Parish. Magnolia Petroleum Company's Frank Sexton 1, C SW NE 32-23n-9w, proposed 9000-foot test in the shallow Shongaloo gas field, Webster Parish, was drilling at 6340 feet.

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Standard, Terry 2, 2-23n-16w.....	345	5995
CLAIBORNE PARISH (Lisbon)—		
Magnolia, Fowler 1, 28-21n-4w	960	5209
LINCOLN PARISH (Lisbon)—		
F. H. Brown, Patton Est. 1, 6-20n-4w	720	5379
WEBSTER PARISH (Cotton Valley)—		
Magnolia, Marshall 7, 21-21n-10w. ¶8 &	630	8405

*Failures; †Junked; ¶Million cu. ft. gas.

Ohio Oil Company's Warren Cox 2, C SE SE 23-21n-10w, will be the next well to be tested in the lower Marine at Cotton Valley, Webster Parish. It was waiting on 7-inch casing at 8070 feet, with total depth of 8110 feet after logging top of the Bodcaw sand at 8061 feet; elevation is 193 feet. The company completed Marshall 7, SW SE 21-21n-10w, at 8405 feet, gauging 630 barrels of distillate and 8,000,000 feet of gas in 24 hours through 7/16-inch tubing choke with 2700 pounds tubing pressure and 2900 pounds casing pressure.

Twelve other tests are drilling in Cotton Valley whose Travis Peak horizon recently added its third oil producer. Another test is rigging and two derricks are up.

Howard M. Jones' Chicago Mill & Lumber Company 2, C NE SW 31-12n-10e, Tensas Parish, is drilling at 760 feet after resuming at 750 feet following a shut down due to high water. Moving in of materials was resumed at Continental Oil Company's Singer 1, C NE NE 3-15n-11e, Madison Parish, where location was 7 feet under water recently. E. A. Addey's Pasternach 1, C NW SW 3-8n-9e, (irregular sec. 49) Concordia Parish, is cementing 12-inch surface casing at 480 feet. It is planned as a 4500-foot test.

The Marion County, Texas, end of Rodessa, last week with 11 tests drilling had exactly as many such operations under way as did the Louisiana and Arkansas sides of the field combined.

Marion County secured 6 new locations last week to continue the most active part of the field. Arkansas had 6 drilling operations, including 2 wells testing, 1 rigging and 1 active location, while the Louisiana side had 5 tests drilling, 5 locations, derricks and rigs.

Cass County, Texas, had 2 active operations, including a new location by G. H. Vaughn Production Company for a 4-mile northwest outpost, at G. W. Ryley 1, James Taylor A-1029 Survey, which is rigging.

ARKANSAS FIELDS

Second test underway in new Buckner field

El Dorado, Ark.—Despite bad weather and high water, good progress was made last week in the second test in the Buckner field. This test is Lyons & Neely's Lillian Taubel 1, (Tatum fee), C SE NW 18-16-22, LaFayette County, southwest of the discovery well, Standard Oil Company of Louisiana's J. P. McKean 1, C SW SW 8-16-22, Columbia County.

The LaFayette County test, after top-

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
NEVADA COUNTY (Troy)—		
Benedum & Trees, Mitchell 1, 4-14-19	50	2146
OUACHITA COUNTY (Stephens)—		
O. F. Whittaker, Guttry 2, 21-15-19	13	2208

*Failures; †Junked; ¶Million cu. ft. gas.

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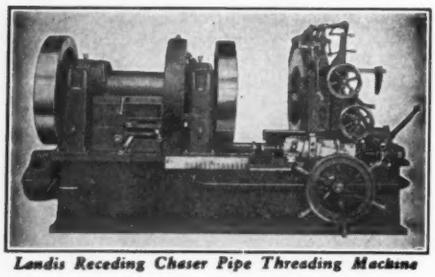

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ping first anhydrite at 3279 feet and massive anhydrite at 3298 feet, was drilling ahead at 3662 feet in shale. In C SE NE 18-16-22, across the line in Columbia County, Standard Oil Company had practically completed rigging Bodcaw Lumber Company 1, and was building road to location at D. E. Thomas 1, NW SE 8-16-22.

Kerrlyn Oil Company's Barnett 1, SE SW NE 14-17-20, Columbia County wildcat, in a core from 7580 to 7589 feet logged shale and dolomitic material, indicating it might be near top of Permian lime but one foot below bottom of this core it stuck drill stem which was still unlodged late in the week. Elevation is 321 feet.

Three tests that penetrated lower Marine and Permian lime in the Schuler field, Union County, were waiting on cement to set in final casing string preparatory to testing last week.

Alice Sidney Oil Company's J. C. & D. S. Morgan 3, NW NE SE 18-18-17, had stuck drill stem at 7717 feet. The three with casing cemented and to be tested soon are: Lion Oil Refining Company's Edna Morgan B-4, NW SW SE 18-18-17, with elevation of 222 feet topped Jones sand at 7501 feet, topped Permian lime at 7610 feet and has total depth of 7633 feet. Phillips Petroleum Company's Justiss 2, SEc Lot 6, NW 18-18-17, with elevation of 231 feet topped Jones sand at 7507 feet and the Permian lime at 7610 feet; total depth is 7700 feet. The same company's Marks 2, NEc Lot 2, SW 18-18-17, landed 7-inch casing at 7681 feet; total depth is 7700 feet.

Altogether Phillips Petroleum Company has six tests drilling in Schuler, Marine Oil Company has four drilling, Lion has five drilling, beside two other active locations and there are three other drilling operations in Schuler.

SOUTHEASTERN STATES

Mississippi test passes 8000 feet

Jackson, Miss.—A new depth record for the southeastern states was set last week when Sun Oil Company and associates' Talley 4, 33-4n-15w, Lamar County, Mississippi, reached a depth below 8002 feet set several years ago in a test in Covington County, Mississippi. Sun Oil Company and associates' test was drilling at 8020 feet in hard shale with streaks of lime and sand, elevation is 374 feet. The hole is averaging only 1.75 degrees off perpendicular.

It is the fifth test drilled on the salt dome found a year ago this month by the same operators in Section 28-4n-15w. Joe Modisett of Shreveport, is drilling the present test and has drilled the entire series.

By a coincidence Modisett, operating for himself, recently set a new depth record for Alabama when his McCorvey 1, SE SW SW 20-9n-2w, Choctaw County, on the Hatchetigbee anticline, reached 7520 feet. Companies owning spreads in this block will aid in deepening this Alabama test.

ROCKY MOUNTAIN FIELDS

Wilson Creek well is preparing to test.

* * *

Garland anticline is extended to north.

Casper.—Interest in the Rock Mountains centered around deep tests, including several wildcats nearing their objective.

The joint wildcat test of The Texas Company and The California Company on the Wilson Creek structure in northwestern Colorado, which attracted nation wide interest two weeks ago when it tested 1480 barrels daily through the drill stem from 6664-6704 feet in the Morrison, is setting 7-inch casing on top of the Sundance sand. The well drilled to 6918 feet, but a drill stem

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test of the Sundance was disappointing as water was found. Consequently, the well plugged back to the top of the Sundance at 6824. The upper five feet of Sundance appeared to be oil saturated and free of water, and will be tested this week. It is likely that the well will be perforated back into the Morrison and completed. More than 15,000 acres are said to be embraced on the Wilson Creek structure. This is the largest in Colorado, and a long term steady drilling campaign is expected. The Texas Company and The California Company control all the acreage, the majority of which is government land. The well is located in the SW SE NW 35-3n-49w.

Cole Creek Watched

Nearing its objective, the Wall Creek series which have been prolific oil producers in Wyoming's major oil fields, General Petroleum Corporation's Government 1, NW NW SE 21-35n-77w, Cole Creek area, is attracting considerable attention. It is drilling at 5717 feet, and is expected to reach the formation within the next 10 to 15 days. The test bears considerable importance to Wyoming wildcatting, as it is one of the first wells to drill on a basinward trend with equipment capable of penetrating the geological deposits that form an overburden. Results at Cole Creek are expected to influence largely the possible testing of 12 or more sizeable blocks assembled throughout the Powder River Basin (See THE OIL WEEKLY, December 27, 1937).

Cole Creek structure is about 30 miles south of Salt Creek, which has produced upwards of 270 million barrels of light oil from the Wall Creeks the past 20 years, and is 9 miles north of Big Muddy, which has produced 24 million barrels from the Wall Creeks.

The Shannon sand was logged at 4500 feet by the test, and heavily saturated light oil cores were recovered. Operators may perforate back into the Shannon should the Wall Creek prove disappointing.

Garland Extended

Garland Syndicate completed Government 1, NE SE 10-56n-98w, an important extension well on Garland anticline, Park County, northern Wyoming, for 2,230,000 cubic feet of gas daily in the Torchlight sand. The well is nearly 3 miles northwest of Kinney-Coastal Oil Company's Government 1, which a year ago marked an important Garland extension with oil in the Tensleep sand, which heretofore had carried only gas at Garland.

Resolute Oil Company's third deep well in the Badger Basin field, deepest Rocky Mountain productive structure, is swabbing down casing after setting casing at 6387 feet in the Frontier sand. Bottom of the hole is 8164 feet in oil sand.

In the Salt Creek field, Stanolind Oil & Gas Company drilled another of its deep wells into the Tensleep sand, and started work on a new well to that horizon. Tensleep 11, C NE SW 35-40n-79w, is waiting on cement to set around 6⅝-inch pipe at 4026 feet.

MOUNTAIN STATES Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
TOOLE COUNTY (Kevin-Sunburst Field)—		
Henry Vander Pas, Thompson 1, sw nw nw 33-35n-3w	25	1707
WYOMING		
NIOBRARA COUNTY (Lance Creek Field)—		
Ohio, Cash 5 OPC-2, cnw ne 4-35n-65w	500	4131
WESTON COUNTY (Osage Field)—		
Osage Trust Co., 28, cel ne sw 14-46n-64w	20	1866

*Failures; †Junked; ¶Million cu. ft. gas.

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NEW MEXICO

Lea County drilling again on increase.

* * *

Two Vacuum extension wells showing oil.

Hobbs, N.M.—Lea County is recovering from the year-end lull in field developments, having 10 new projects listed the past week as compared to 8 the previous week. New tests are about evenly distributed among the older fields, and the majority are forced by offsets. Exploration of the Vacuum lime area is moving forward faster than anticipated. Two new locations by Phillips Petroleum Company gives this isolated high-gravity oil source 8 tests on proved locations in addition to 6 flowing producers. Upon completion of these pending tests, the vacuum area will then have more than a dozen direct offsets to be drilled. All operators are observing 40-acre spacing, and progressive offsets follow in rapid order.

Reduced allowable for prorated wells in New Mexico is slated for the February period as a result of the Oil Conservation Commission having ordered allowable cut 2000 barrels to 105,100 barrels daily. The proposed cut will be borne almost entirely by Lea County, where the allowable averages about 64 barrels daily.

Two completions slightly removed from production in the Vacuum area are due this week. Magnolia Petroleum Company's State-Bridges 3, C SW SE 23-17s-34e, began showing oil in lime at 4460-62 feet, with an elevation of 4028 feet, and was drilling with cable tools. This company's State 1-H, was drilling at 2100 feet, and State 1-I cemented 10-inch at 497 feet. Phillips Petroleum Company's State-Hale 1, C NE SE 35-17s-34e, was drilling plugs from 7-inch at 4290 feet, and locations have been made for State-Commissioner 1, C SW SE 30-17s-35e, and State-Santa Fe 1,

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY—		
Carper Drlg. Co., Gissler 2, sw se nw 23-17s-30e	*	3688
Etz Bros. et al, State 4, sw se se 16-17s-30e	401	3253
F. W. & Y. Oil Co., Gissler 7-A, sw sw se 14-17s-30e	180	3480
LEA COUNTY (Cooper)—		
Barnsdall, Whitten 1, se se se 33-23s-36e	1440	3630
LEA COUNTY (Eunice)—		
Shell, State 2-L, ne se se 1-21s-35e	47	3905
T. P. Coal & Oil Co., State 7-A, Acct. 2, c nw nw 8-22s-36e	150	3875
LEA COUNTY (Langlie)—		
Culbertson & Irwin, Alston-Tidal 1, nw nw nw 26-25s-37e	135	3345
LEA COUNTY (Penrose)—		
Atlantic, Grizzell 1, c se ne 6-22s-37e	101	3790
Rowan Drlg. Co.-N. G. Penrose, Elliott 2-B, c nw nw 9-22s-37e	23	3733
LEA COUNTY (Maljamar)—		
Emperor Oil Co., Johns 1, c sw nw 24-17s-32e	28	4390

*Failures; †Junked; ¶Million cu. ft. gas.

C SW NW 31-17s-35e. The latter are diagonal offsets to Skelly Oil Company's east outpost producer. Ohio Oil Company and Geo. F. Getty et al were drilling in the salt section at 1990 feet and 1560 feet, respectively.

W. L. Todd, trustee's Leonard 1, wildcat in southeast corner of Lea County, was drilling at 3200 feet, with an elevation of 2994 feet. It is on a northwest strike from the Keystone field in Texas, and production is expected near the 3400-foot level. Continental Oil Company et al's Marsh 1-A-31, C NE SE 31-20s-39e, wildcat near the east border of the county, was drilling at 3790 feet, having logged top of anhydrite at 1951 feet sub sea.

Initial yield of 150 barrels of oil daily was recorded by Texas Pacific Coal & Oil Company's State 7-A, NW NW 8-22s-36e, east offset to one of the largest wells in the southwest portion of the Eunice lime area, after using acid at 3875 feet, or 265 feet sub sea. Gulf Oil Corporation has started Day 1, SE SE SW 6-22s-36e, offsetting production in the southwest edge. Continental Oil Company's State 1-F, C SW SW 1-21s-36e, extreme northeast edge location, is rigging up. The Texas Company's State-University 14, SW SW NW 19-20s-36e, is a new project for the north portion of Eunice. Ohio Oil Company's State-Hansen 4, C W½ SE NE 16-20s-37e, has been reinstated as an active location for the east edge of the Monument area.

Shell Petroleum Corporation's State 1-A, C NW SE 16-23s-36e, is a new operation in the older section of the Lynn lime area. A producer would require a series of offsets. Barnsdall Oil Company has skidded rig to J. W. Whitten 2, SE NE SE 33-23s-36e, offsetting the northernmost producer in the Cooper area, after completing Whitten 1, SEc of the 80-acre lease, with a natural flow of 60 barrels of oil per hour from lime at 3595-3630 feet. Top of the lime was logged at 3200 feet, and first Yates sand at 3340 feet, with an elevation of 3412 feet.

Sun Oil Company's Lanehart 2, C NE SE 20-25s-37e, southwest edge of the Langlie sandy-lime area, made gas and a small amount of cut oil after 60-quart nitro shot at 3485-3505 feet. Hole has been plugged back from 3620 feet, or 568 feet sub sea, to 3325 feet to shoot upper lime. Four offsets are required by the recent completion of Culbertson & Irwin, Inc.'s N. E. Alston-Tidal 1, NW NW NW 26-25s-37e, southeast outpost for the Langlie area, with an initial flow of 135 barrels. Sandy-lime at 3285-3345 feet was shot with 160 quarts nitro. Phillips Petroleum Company's Helen 1, C E½ SE NE 33-24s-37e, is a new project for the northwest edge of the Langlie area. An intermediate test for the Skelly and Penrose areas has been started by Danglage & Clower's Rosa Glier 1, C SW NE 33-22s-37e.

J. E. FARRELL, president of Farrell & Company, oil producing concern, was recuperating at a Fort Worth hospital last mid-week following an operation. Farrell is a co-discoverer of the Longview section of the East Texas oil field, and satisfies his political ambition by being mayor of Westover Hills, exclusive residential district adjacent to Forth Worth.

MICHIGAN FIELDS

Current operations project deep holes

Mt. Pleasant, Mich.—Deep tests, drilling or projected, currently are attracting more attention in Michigan than many of the rank wildcats projected for only shallower horizons.

Last year only a few isolated tests were carried below known producing horizons in the state. This year, it now looms that the first quarter will see from six to a dozen tests carried into horizons comparatively untested.

Mammoth Producing & Refining Corporation has resumed operations on the Oard 1, Section 25-18n-1w, Buckeye township, Gladwin County, at 4330 feet in salt strata of the Lower Monroe. It is the deepest test so far drilled in the Buckeye district, where the Dundee lime is the producing formation of the 350 completed wells. This formation produces in Buckeye between 3500 and 3680 feet.

Socony-Vacuum Oil Company will go ahead with initial plans for a deep test in Home township, Montcalm County, Section 22-12n-6w, after successfully landing a 651-foot string of 14-inch drive casing. This test is two miles south of the Home township Traverse

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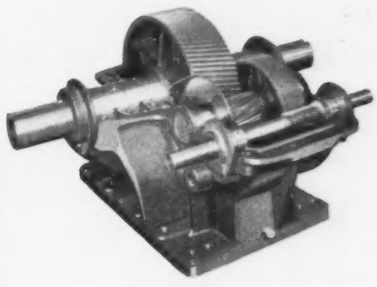


lime (3000-foot) field. Operators plan to test Dundee, Monroe and possibly the Sylvania limestones.

In Western Michigan, Midstates Corporation's Eichenberger 1, Section 7-16n-11w, Newaygo County, is drilling Lower Monroe at 4210 feet. This test is 18 miles northeast of Newaygo Oil & Gas Company's Bates 1, Section 12-13n-13w, Newaygo County, abandoned at 6674 feet, March 12, 1935, at a depth record in Michigan. This test was quit in the Trenton, topped at 6415 feet, non-productive.

MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BAY COUNTY—		
Stork Oil Co., Century 1, ne se se 9-17n-3e	*	3283
Century Oil Co., Wilson 1, se se se 27-17n-3e	*	3302
GLADWIN COUNTY—		
Sun, Baum 3, nw nw sw 3-18n-1w	241	3660
Rodman 1, se sw nw 3-18n-1w	*	3697
Turner Pet. Co., Schranz 3, nw se se 3-18n-1w	25	3633
American Drlg. Co., Soldan 6, sw nw se 12-18n-1w	250	3627
R. L. Tope, Beuhler 4, sw nw ne 26-18n-1w	200	3591
M. F. Whitehill, Taylor 1, se se ne 11-19n-1e	*	3458
HURON COUNTY—		
C. W. Teater, Martin 1, ne se ne 15-15n-11e	*	2961
ISABELLA COUNTY—		
Pure, Latham 2, se se se 32-15n-6w	360	3633
OGEMAW COUNTY—		
Gordon Oil Co., Raymore 2, sw sw se 13-22n-1e	75	2800
ROSCOMMON COUNTY—		
Maynard Smith, Eggleston 1, c nw nw 32-21n-2w	*	4280

*Failures; †Junked; ¶Million cu. ft. gas.

CALIFORNIA FIELDS

Kern County test has record at 12,748 feet.

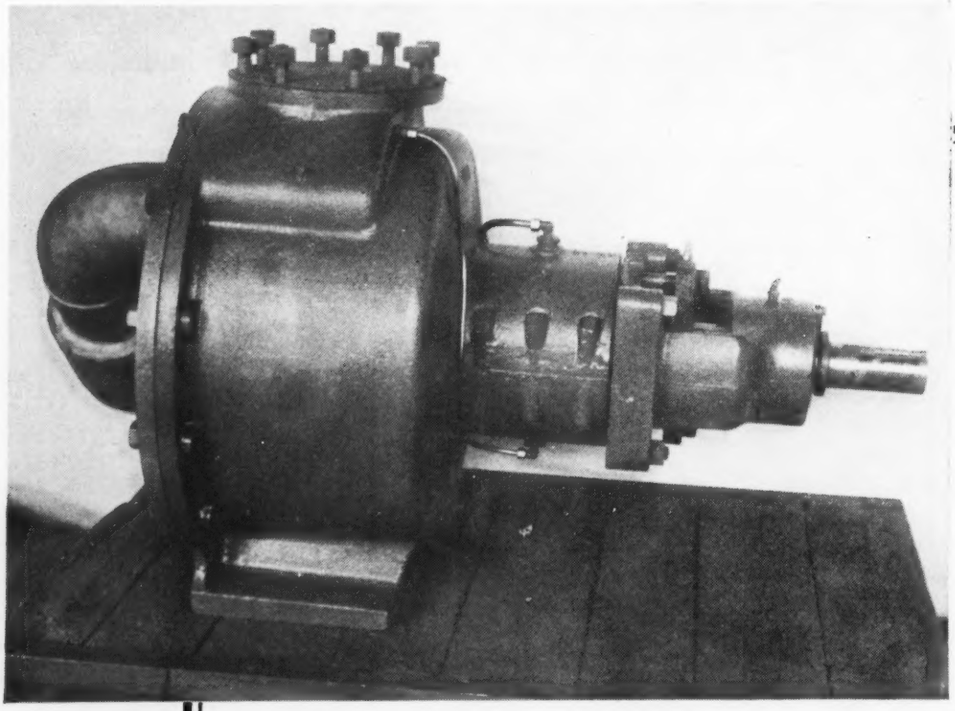
* * *

Three Wilmington producers prove Terminal area.

Los Angeles.—Continental Oil Company's Kern County Land A-2, Section 8-27-24, in the Wasco area of Kern County, now holds the record of the deepest well to be drilled in California and is coring at 12,748 feet in shale. First oil showings were picked up in a core from 12,603 to 12,615 feet and 6 feet of formation was recovered consisting of shale with streaks of oil sand. Objective of the test is the Vedder sand, the producing horizon of the Rio Bravo field, recently discovered by Union Oil Company in Section 34-28-25.

Completion of three wells in the Long Beach area of the Wilmington field proved that the Terminal zone in the easterly end of the field is productive. Superior Oil Company's Community 1960-1, near Armor Place and Eldorado Street, was completed from a plugged depth of 3890 feet flowing 4320 barrels daily, 24 gravity clean oil. In this well, both Ranger and Terminal sands are being produced; with a packer on the tubing the Terminal zone is flowing through the tubing and the Ranger zone is flowing through the casing.

General Petroleum Corporation's Harbor Community 1, near Kern Place and Eldorado Street, was completed from 3939 feet, flowing 2000 barrels daily, and then Harbor Community 6 completed flowing 2200 barrels daily. Both wells are clean and production is coming from the Terminal zone. Additional drilling which is under way will give a better subsurface picture of the area and due to minor faulting, may



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eliminate a portion of the field as to production.

Petroleum Securities Company's Rembush 1, Section 35-10-34, southwesterly extension test of the Santa Maria Valley field, was completed from 5432 feet, producing 1000 barrels daily of 12-gravity clean oil. Although the initial production of the well is no surprise, it was believed that due to previous drill-stem test that the gravity would be much higher.

Two northwesterly extension tests of the Round Mountain field were abandoned after finding the Vedder barren. Petroleum Securities Company's Coffee 6, in Section 1-28-28, was abandoned at 2200 feet, and Harry R. Long's No. 1, Section 2-28-28, was drilled to 1961 feet.

In the Grapevine area, Kern County, Ohio Oil Company's D-2, Section 23-11-19, cored into gray sand at 5896 feet and was abandoned at that depth. Drill-stem tests of showings farther up the hole proved to be of no commercial value. Ohio Oil Company's gasser in Section 18-20-2, in Glenn County, is still blowing wild from 4505 feet. Gas production has decreased to approximately 20 million feet per day but the well is flowing approximately 80,000 barrels salt water daily.

Barnsdall Oil Company's Rancho San Francisco 2, Section 26-4-17, cored considerable oil sand from 6385 to 6677 feet and upon drill-stem test with packer set at 6385 feet, flowed at an estimated rate of 1000 barrels daily, 33 gravity clean oil.

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
DOMINGUEZ—		
Tide Water Associated, De Francis 15	284	4365
Union, Callender 56	306	7300
Callender 57	509	7150
SANTA FE SPRINGS—		
Italo Pet. Corp., Archer 1	*	7825
WILMINGTON—		
Allied Pet. Corp., Allied 23	355	2990
Pongratz Pet. Co., Gilmore 1	450	3686
Union Pacific, Offset 80	397	3199
Selegna Drg. & Prod. Co. 14	140	3585
Superior, Comm. 1960	4200	3890
Wilton Oil Co., No. 1	200	3417
ELK HILLS—		
Richfield, No. 11-D-A	40	3359
GREELEY—		
Standard, K.C.L. No. 12-13	*	5136
GRAPEVINE—		
Ohio, T.R.C. D-2	*	5896
KERN FRONT—		
Kern River Oilfields, Ltd., 25-4-B	110	2036
KETTLEMAN HILLS—		
Kettleman North Dome Ass'n., 83-4-P	3600	8500
MT. POSO—		
Johnston Drilling Co., K-1	*	1120
MIDWAY-SUNSET—		
Ethel D Company, No. 21-A	12	1441
Otis Hoyt, Maricopa No. 8	130	1588
Pattiway Oil Corp., No. 4	80	1671
ROUND MOUNTAIN—		
Harry R. Long, No. 1	*	1960
Petroleum Securities Co., Coffee 6	*	2098
Eastmont Oil Co., Olcese 5	250	1778
D. G. Vedder, Bell 5	250	1853
TEN SECTION—		
Shell, B-30-27	2660	8200
Standard, K.C.L. 15-1	500	8072
SANTA MARIA VALLEY—		
Geo. F. Getty, Inc., Vicente	3500	4654
Ohio, Moretti 3	200	4259
Petroleum Securities Co., Rembush 1	1000	5432
Signal O&G Co., Ronalho 1	1340	4625
Union, Acquistapace 1	400	4361
PIRU—		
Commander Oil Co., Ltd., F. T.	75	2030

*Failures; †Junked; ¶Million cu. ft. gas.

Letters to the Editor

K-M-A Masterpiece

My congratulations. "Historical and Somewhat Chronological" will go down in the record book as the outstanding trade journal contribution of all time, certainly until some genius painting with words and a keen sense of typographic arrangements presents a new masterpiece.

Your style, the typographic break-up, illustrations, and comprehensive analyses of conditions and situation at K-M-A, deserve national recognition. Again, my congratulations, and a sincere hope that you will repeat your success.

HENRY A. LEY
Southern Cross Oil Company,
San Antonio, Texas.

Grady Triplett, who painted the picture of K-M-A, managed to take a bow and stammer "thanks," but you left his usual willing tongue in the roof of his mouth. We assure you we have additional similar assignments planned for him, and now expect him to live up to the reputation he has established.

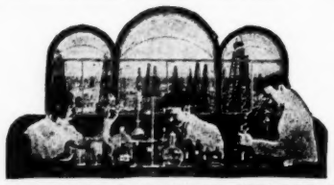
More of K-M-A

Nice article on K-M-A this week. I have been in Jack County for five years. We have an oil field here also. I have not missed a copy of THE OIL WEEKLY for many years. I feel that we are due some consideration.

GEORGE C. MEREDITH
Fort Richardson, Texas.

When Jack County has a field with over 100 drilling operations, with a proven area large enough to accommodate 3000 or more completions, and ultimately produce over 200 million barrels of oil, Mr. Triplett and THE OIL WEEKLY will be there to cover it. Meanwhile, important developments will be presented weekly as usual.

GEOPHYSICAL SOIL SURVEYS
PERHAPS YOU SHOULD KNOW:
1. That more major concerns use this company's GEOPHYSICAL SERVICE for locating oil than perhaps any other one concern.
2. That although our mistakes are sometimes serious, yet:
3. We can accurately record structural accelerations 5 out of 6 times, and
4. Oil, possibly 6 out of 10 times.
5. By chemical analysis of surface soils.



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PETROLEUM BLDG.
FT. WORTH TEXAS
NOTICE: Why Write?
There may be a Field Crew Manager or Traveling Representative already in your vicinity who will courteously answer your questions. He will be in your office in a few hours
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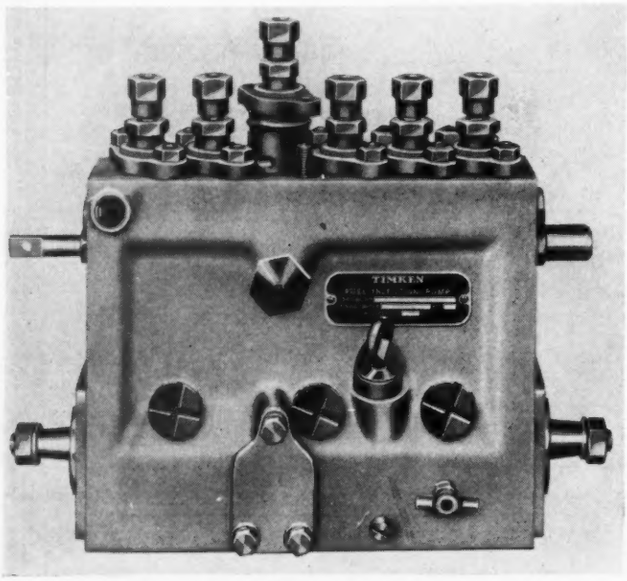
NEW PRODUCTS FOR THE FIELD
Machinery • Tools • Equipment

RENEWABLE PUMPING UNITS
The Timken Roller Bearing Company

The Timken Roller Bearing Company, Canton, Ohio, has placed on the market renewable pumping units having a plunger diameter range from 4 mm. to 9 mm., for use in Timken fuel injection pumps. The units are pre-metered at the factory, thus eliminating any pump calibration or metering in the field at the time of installation and can be installed in a few minutes.



Timken Renewable Injector Pump Unit

This renewable pumping unit is a self-contained, accurately metered, precisely timed mechanism. It comprises in a rigid, simple unit body the barrels and plunger, the delivery valve and the delivery valve spring. It is held tightly in the injection pump housing by means of two hexagon nuts threaded on two studs in the pump housing, pressing against a flange on the upper end of the pumping unit body. The pumping unit is positively aligned axially in the housing by the close fit in the housing bore and by reason of one of the unit flange holes being accurately slotted to bear tightly on two sides of one of the precisely placed dowel studs. The pumping unit slips easily into place and is tightened into the injection pump by means of the hexagon nuts until the unit flange seats firmly on a gasket against the flat top of the housing.

Without removing the injection pump from the engine, the operator can easily and quickly replace a pumping unit which has been damaged or worn in service.

TUBING GUIDE
L. H. Morris

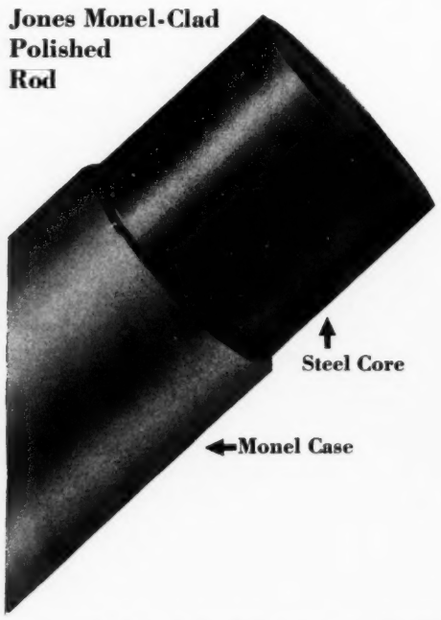
L. H. Morris, 235 Metropolitan Building, Muskogee, Oklahoma, is the distributor of a new type non-friction tubing guide designed to eliminate wear of tubing and casing wall. It was recently developed by O. C. Willis and will be known as the Willis Tubing Guide.

The guide is non-friction, made from hardened tubing stock, and consists of an inner and outer sleeve having three matched race grooves containing 14 balls each. The inner sleeve is babbitted onto the tubing at deviatory point in the well. The outer sleeve is held stationary in the casing with three strong leaf-type springs. The inner sleeve is 2 feet long, while the outer sleeve is 1 foot. This permits a 1-foot travel of tubing in either direction on the ball-bearing structure.

The guide has proven satisfactory on a number of tests where wells have been drilled deviatory to regular course. By the prevention of tubing coupling and casing wear, caused by what is known as "tubing stretch," the Willis tubing guide accomplishes two things. First, there are no steel cuttings to impair the efficiency of the pump and necessitate frequent changing of cups and plungers. Second, there are no steel cuttings to work their way around tubing threads, causing them to gall and strip.

SUCKER RODS
The S. M. Jones Company

The S. M. Jones Company, Tulsa, recently placed on the market its new Monel-clad polished rods, which, according to the manufacturer, represent a distinct advantage in polished rods for corrosive service because of considerably cheaper cost.



The steel core allows a tensile strength comparable to any ordinary steel rod and the Monel gives it the corrosion-resistance inherent in this alloy. This unique combination has, therefore, the advantage of high strength, outstanding resistance and low cost.

The field engineering department of the company, in cooperation with a number of producers, has carried on tests of this rod in various corrosive wells for over 280 days without failure.

FLOW VALVE
Jon R. Long

Jon R. Long, Fort Worth, Texas, recently placed on the market the Foley compounded outside type flow valve which is actuated by differential pressures applied to a compounded piston. The gas pressure is applied to the small end of the piston and the fluid pressure in the tubing is applied to the large end of the compounded piston. The piston in turn operates a slide valve which controls the input gas. The slide valve is well known for its positive shut-off having been used for years in steam chests of pumps and engines.

The packing used is of the "U" type, which is best known in hydraulic fields for successfully handling pressures as high as several thousand pounds. All working parts on the valve are made from a corrosion resisting alloy carrying a high nickel content. The valve body is made from SAE 3140 steel casting, exactingly machined. All thread detail is in accordance to A.P.I. specifications.

The valve is available in three different sizes.

LIFE IS TOUGH
on sucker rod couplings

AXELSON'S CANDID CAMERA SHOWS HOW COUPLINGS ARE PREPARED FOR A LONG LIFE OF SERVICE IN AN OIL WELL

Wherever man pumps oil from the earth, Axelson Deep Well Plunger Pumps are busy night and day. Sucker rods, connected by hardened and ground couplings, join motive power on the surface with the pump thousands of feet below. Axelson's candid camera shows, step by step, the production of couplings and how they are built to give longer, more satisfactory field service.

Axelson production methods are the result of more than 46 years experience in the building of oil well equipment. Every laboratory test, every manufacturing operation, every plant test has but one objective,—namely, the production of a sucker rod coupling that will meet satisfactorily every field test required of it.

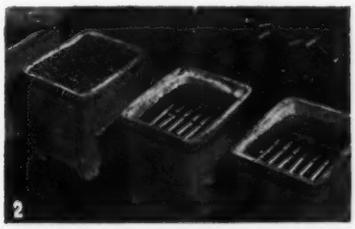
Chemical and metallurgical tests are made in Axelson laboratories on samples from every heat of coupling bar stock. Stock that does not meet Axelson specifications is rejected.

14

Each coupling is placed on an accurately threaded mandrel and faces are ground square with the thread. Thus Axelson reduces to a minimum the possibility of fatigue strains which reduce service life.

1

Wafer thin samples are cut from every piece of bar stock from which couplings are made and acid etched to verify specifications and to reveal any flaws existing in the raw material.


2

Blanks are placed in nichrome boxes and covered with carbonacious material, then heated in electric furnaces to carburize the surface to the proper depth of the coupling blanks.

3

Several specimens from each box are tested for depth of case which controls the depth of hardness of the finished couplings.

4

Carburized blanks roll down the trough into this machine which automatically drills, rough reams, faces, and forms the radius of one end. The same process is repeated on the other end.

5

Wrench flats are next milled before coupling are hardened. At this point each coupling ha been inspected six times and must pass sever more inspections before completion.

6

This automatically controlled furnace provides the particular heat treatment previously determined by laboratory test. After heating the couplings pass on into the quenching tank.

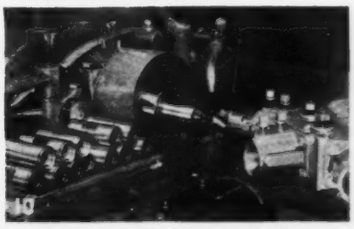
7

Drawing of couplings in the homo electric furnace relieves quenching strains. The carburized area is now very hard, offering greater resistance to abrasion and friction.

8

Immediately after the drawing operation and before the couplings are finished several couplings are selected at random from each lot and tested for Rockwell hardness.

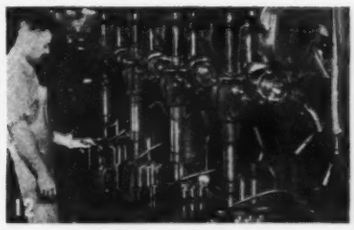
Centerless grinding makes each coupling smooth, essential for frictionless operation within the tubing. Couplings are again inspected before they are passed on for finished machine work.


10

Form reamers (same length as coupling) finish each end and I.D. This operation assures the cone and bore being in alignment and also square with faces.

11

Between reaming and tapping all blank couplings are gauged with a blank taper gauge to verify that the reamed blank is perfectly concentric with each end and that the cone is correct.


12

Taps are run completely through the coupling on multiple spindle geared drill presses. The taps are released so that it is unnecessary to back them out risking distorted threads.

13

"Go" and "no-go" gauges hold Axelson couplings to rigid allowable A P I tolerances. Couplings are made up with Axelson rods at the plant to greater tension than they will meet in service.

15

A feeler gauge is used to inspect the faces of the shouldered couplings and to assure that these faces are square with the axis of the threads.

16

The couplings are washed in a hot spray washer and dried, after which they are dipped in a protective solution for rust prevention. They are then boxed for shipment.

THERE IS NO ECONOMICAL SUBSTITUTE FOR QUALITY

AXELSON

DEEP WELL PLUNGER PUMPS

SUCKER RODS

Axelson Manufacturing Company, P. O. Box 98, Vernon Station, Los Angeles • St. Louis • 50 Church Street, New York • Tulsa

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The MILLER is the ace in the hole for removing sand and sediment that holds back production—clean out quickly at small cost—the Sand Pump with the powerful suction action—in World Wide use.

The MILLER is made in diameters of 2½, 3, 3½, 4, 4¼, 5, 5½, 7 and 9 inches and lengths of 20, 25 and 30 feet. 5/32-inch wall thickness in REGULAR Type. ¼-inch wall tubes HEAVY Type Sand Pumps.

INTERCHANGEABLE BOTTOMS

To Meet Every Condition

- **BAILER BOTTOM**
  With the Bailer Bottom installed the MILLER is quickly changed to a Bailer giving you a combination of either Bailer or a Sand Pump in one tool.
- **SAND BOTTOM**
  Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM**
  Used for cutting the sand loose.
- **CHISEL BOTTOM**
  (In Pump)
  With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

Write for Descriptive Folder and Price List

See Page 1186 COMPOSITE CATALOG

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SAPULPA, OKLA. and KILGORE, TEX.

FOR SALE BY SUPPLY STORES EVERYWHERE

Squeaks from the Bull Wheel

No Fear

"Now, Macpherson, why don't you fight against your longing for drink? When you are tempted, think of your wife at home."

"When the thirst is upon me I am absolutely devoid of fear."

Endurance

Do you think kissing is unhealthy?
I really don't know. I've never been—
What? Never been kissed?
No. I've never been ill after it.

Room for Improvement

A fond father went to a school to see what progress his son was making. In response to his inquiry the principal said: "Your son will probably go down in history—"

"That's good news," glowed the parent.

The principal lifted his eye-brows, and continued: "But he might do better in geography and the other subjects."

Authority

Mr. Williams had hired Sambo to paint his shed at the stipulated price of $2.50. Reappearing on the scene some time later he found Sambo lying in the shade enjoying himself while another negro was busy painting.

"How is this, Sambo?" asked Williams. "I thought I hired you for the job."

"Yes, suh, Mr. Williams, Ah know you did, but Ah sublet the contract for $3.00."

"But," remonstrated Mr. Williams, "I pay you only $2.50, so you are losing money on this job."

"Yes, suh; yes, suh, Ah knows Ah is," was the reply, "but it's worth somethin' to be boss."

Hard to Vision

I just heard the X-ray specialist is going to marry the head nurse.

Well, I wonder what he can see in her.

Has Home Advisory Body

"This Book of Universal Knowledge will tell you everything you ought to know."

"Don't need it. My wife tells me all that—and a lot more besides."

Home, James

"Shay, call me a cab, will ya?"

"My good man, I am not a doorman; I am a naval officer."

"Aw right, then call me a boat, I gotta get home."

Just Wear

"I want to get a corset for my wife."

"What bust?"

"Nothing. It just wore out."

Inherited

"Your son is a cute little rascal."

"Yes, he takes after his father."

"Oh, is his father cute, too?"

"No, but he's a rascal."

Eccentric Minority

"Everyone in town is talking about it. Some are taking her part and some his."

"And I suppose a few eccentric individuals are minding their own business."

Too Much, in Fact

"I am going to make my farewell tour in Shakespeare. What shall be the play? Hamlet? Macbeth?"

"This is your sixth farewell tour, I believe."

"Well, yes."

"I should suggest Much Adieu About Nothing."

He Failed

"I'm a lightning calculator," he stated. "Can you use me?"

"What's a lightning calculator?" demanded the producer.

"Oh, you simply write down a long series of numbers on a board. I look at them a moment, then I turn my back and I either add, subtract or multiply them for you as fast as lightning."

"That sounds fine. Call me at noon tomorrow, at Circle-7 3435."

"Would you mind writing that number down?"

On the Bumper

"Just where did the defendant hit you, Miss?"

"Well, Your Honor, if I had been wearing a license plate it would have been badly damaged."

He Found Out

An official of the telephone company was aroused from slumber. After bruising his knee on a chair, he reached the phone.

"Hello," he growled.

"Are you an official of the telephone company?"

"Yes, what can I do for you?"

"Tell me how it feels to get out of bed at 2 o'clock to answer a wrong number."

Frequent Stops

I suppose you expect me to believe you came straight home from the office.

Sure I did (hic); I came home just like the crow flies.

So I see. Stopping frequently for a little corn.

Oh, Sweetheart

"Does your bride know anything about cooking?" asked the old friend, meeting a recent groom.

"Well," he grinned, "I heard her calling up her mother the other day to ask if she had to use soft water for soft-boiled eggs and hard water for the hard-boiled ones."

Trifles

"Why keep worrying about the children?"

"I can't help it."

"But, my dear, you are hurting your bridge game."